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# GLEANINGS

## IN BEE CULTURE

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MEDINA



Root Co.  
OHIO

Western Edition.

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A JOURNAL DEVOTED  
 TO BEES  
 AND HONEY  
 AND HOME  
 INTERESTS.

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 SEMI-MONTHLY  
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No. 1



THOSE CELL CUPS in wood, p. 1050, what do you furnish them for? [There is soon to be issued a little treatise on queen-rearing by the Root Co., and in this will be a price list of tools, appliances, and materials for the rearing of queens.—ED.]

A CORRESPONDENT asks what I would advise as to hives, frames, etc. For comb-honey, single wall eight-frame hives (ten frame if they can not have much attention), Miller frames (perhaps Hoffman if no bee-glue) wired or with foundation splints, full sheets of foundation in frames and sections; the same for extracting, only ten frames; possibly shallow frames for extracting-super; cover with dead-air space; deep bottom-boards.

HAS AIKIN, along with other Coloradoans, a monopoly of the paper-bag package? For alfalfa honey seems to be more given to granulating than any other leading sort in this country, and it is possible that other kinds might not work in paper bags—at least not without draining. [It is my personal opinion that Eastern honey should be fully drained before it is put up in bags. In our next issue we will describe an oyster-pail for putting up candied honey.—ED.]

M. A. GILL springs a new thing on us, p. 1055—gives starters to a swarm and gets 95 per cent worker comb. He ought to know—undoubtedly does know—that the bees have on their statute-book a law that, for the first ten or twelve days, a swarm is to build worker comb, and after that a fair amount of drone comb. Now see the unfair advantage that man Gill takes of the bees: he doubles the force of bees, so that in the first ten or twelve days they get their brood-

chamber filled, and then when they're ready to build drone comb there's no room for it.

SO YOU'RE GOING to camp on my trail, Mr. Editor, p. 1041. All right, but remember that trails sometimes go in a circle, and it may be well for you to keep an eye out rearward. In the meantime I can be looking up the prices of automobiles. [I will be very moderate in my demands for an automobile. One costing somewhere between \$4000 and \$5000 would suit me very well. I will buy the plug hat if you will get the auto. Say yes, and we will call it a bargain.—ED.]

APIS MELLIFICA is mentioned, page 1047. Isn't that *mellifera* nowadays? [*Apis mellifica* is the term used by Cowan and Cheshire in referring to the hive bee, and by Prof. Comstock, of Cornell, in a recent work on entomology. The same term is also recognized by the great Century Dictionary, the International, and the Standard. The only authority that I have run across so far that uses *Apis mellifera* in a late work is Prof. Cook. I can not now find Benton's work; but my impression is he uses *Apis mellifica*. Either is right, but the first is more common.—ED.]

THOS. CHANTRY says, in *American Bee Journal*, "I saw 7 worker-bees backed in a comb as far as their wings would let them at one time; and after killing these 7, I soon killed 23 more that were backed into the same comb. So I came to the conclusion that laying workers are unlimited in number when they get started." That corroborates what a transatlantic scientist proved in an entirely different way: he dissected the bees of a laying-worker colony, and found the most of them contained eggs. I never caught more than one worker in the act of laying, and that was in a worker-cell. It looked so very uncomfortable, with its wings pushed up about its neck, that I don't wonder laying workers prefer larger cells in which to lay. [I think we may now call it pretty well settled that there is apt to be more than one laying worker in a laying-worker colony.



Some little time ago I challenged Dr. Miller for the proof, and I hereby acknowledge its receipt. If any one else has seen a plurality of fertile workers in the act of laying, I wish he would hold up his hand. While we are getting proof, let us have plenty of it.—Ed.]

THE *American Bee-keeper* joins the ranks of those who prefer four-piece to one piece sections, and "would prefer to pay the market price for the four-piece style rather than to accept as a gift the folding kind." I wonder, now, I wonder, if it can be that a large number prefer the four-piece. I must confess that I changed to the one-piece, not because I liked them better, but because I wanted to be in the fashion. [If I am not mistaken, this preference for four-piece sections will be found to be confined very largely to certain limited localities—Vermont, New York, and Michigan. There was a time when the one-piece sections had more of a tendency to assume the diamond shape than now, and this was responsible for the preference for the four-piece goods. However, it is pleasant to know there will be a good many who will be perfectly willing to go back to the four-piece sections when the time comes that the lumber for the one-piece is no more to be had except at prohibitive prices.—Ed.]

EDITOR HUTCHINSON thinks a plain board cover cleated to prevent warping "is all right for a large majority of localities;" and Editor Root says, "There is nothing better than the old flat cover." I'm much surprised that two men who look as intelligent as they do should talk that sort of stuff. Cleats don't prevent warping; and if they did they can't prevent twisting, and twisting is worse than warping. Besides, we want a cover with a dead-air space, so as to be cooler in summer and warmer in winter. A cover is the last thing about a hive on which to economize. A good cover can't be made without costing something, and it's worth all it costs. [But neither one of us, doctor, intimated that the old flat cover was perfect; for, speaking for myself, I never saw any cover of any construction that would not warp, twist, or check, somewhat. The plain cleated board for most localities had as few faults as any cover I ever saw; but, as I have already explained, a single board is now out of the question for most localities because of its cost.—Ed.]

"A CONFINEMENT of six weeks in chaff hives outdoors during the cold weather ought to put the bees into condition where they will stay in the new location if they were moved before they had a fly," p. 1043. Correct. Also, the same in other than chaff hives. Also, in cellar as well as outdoors. Also, in hot as well as—yes, better than—in cold weather, for a much shorter confinement is necessary. In hot weather half a day's confinement or less will make them stay pretty well wherever put, *providing* they do a sufficient amount of worrying trying to get out. [But is it not dangerous,

especially for a beginner, to shut up bees in hot weather for moving to a new location? That is, are the bees not liable to suffer from want of air? In forming nuclei, in the springtime and summer, it is our regular practice to shut up the entrances for two or three days, then open them up, at the end of which time the bees will stay with very little difficulty. While this practice would be perfectly safe with very weak colonies, it might cause the loss of some strong stocks treated in a like manner. But, say! we can get around the difficulty by putting on an upper story with a wire-cloth top, then putting a shade-board over the whole. The regular moving screen could be used very well for this purpose. But it is well to bear in mind that those who have full-sized colonies to move a short distance can do it best in winter.—Ed.]

GEO. W. PHILLIPS is giving us some interesting stuff about queen rearing, p. 1048. The problem is to know how much of it is for professional queen-rearers and how much for us little fellows who merely rear queens for our own use—for example, that argument, p. 1050, as to the advantage of queen-right colonies. There are times when not one of the four points applies to some of us who are working for honey chiefly. [If one desires to rear his own queens, especially if he wishes to requeen his old apiary, he had better follow the *modus operandi* described, for he will thus save time and also insure a better quality of queens. It may take a little more time with the first batch; but after one has familiarized himself with it he will find it a real pleasure, and an actual saving in time. And then it is true that there are many large bee-keepers who have anywhere from 300 to 1000 colonies, and there are a few whose colonies run up into the 2000 mark. Such bee-keepers can hardly afford to buy all their queens, and therefore it behooves them to use the latest and best methods known to queen rearing science. The general plan outlined by Mr. Phillips is a modification of several plans tested out in an experience in rearing thousands of queens in our own yards. The small bee-keeper may, perhaps, get all the surplus queens he needs from swarming-cells found in some of his best colonies.—Ed.]

A CELLAR with no outside door has in southeast corner a bee-room 9×12, with window opening in woodshed under well platform, chaff sack in window. This in New York State. I am asked whether this is ventilation enough. I *think* so, if window is 3 ft. by 1 or larger, and chaff pretty loose. What says ye editor? [This matter of ventilation, I am coming to believe, depends largely on locality. At Medina, which is much warmer than Marengo, I am sure, very sure, that more ventilation is required, because, when it becomes very warm outdoors, considerably above the freezing-point, it is apt to be warm in the cellar. Warmth arouses the activity of the

bees, causing a greater consumption of air. If the air is foul, the bees become uneasy, fly out on the cellar bottom, and die. Some late experiments this winter have shown exactly this. We have repeatedly proven, in our locality at least, that fresh air quiets the bees. To answer your question specifically, I will state that the ventilation mentioned, for New York, if in the northern part of the State, might be sufficient through the window opening out under the woodshed. But at Medina, on warm days, the bees would require a good deal more air than could percolate through that chaff cushion. Doolittle and Ira Barber live in localities much colder than ours. and they recommend no ventilation. Mr. Barber especially is clear up in the northern part of the State; and it is possible that in such localities fresh air is more disturbing than the ordinary air in the cellar, because it arouses the bees to activity.—Ed.]

MR. PHILLIPS finds that "bees will build drone comb after a swarm is shaken, the same as before." Is that peculiar to Jamaica, or do shaken swarms differ so much from natural ones? It has been given as a rule, perhaps never contradicted, that a natural swarm would build worker comb almost if not quite entirely until half the frames are filled, then more or less drone comb. [This has been referred to Mr. Phillips, who replies: This depends entirely upon conditions, such as the strength of the shaken swarm, the age of the queen it contains, the amount of honey coming in, etc. I shook some 200 strong swarms on starters the last year I was in Jamaica. The result was good so far as honey-production was concerned; but, drone comb! As Dr. Miller intimates, there is generally some worker comb built at the tops of the frames; but in some instances the drone comb equals and even exceeds this. I am not prepared to say whether shaken swarms would act in the same manner at Medina, as all of ours were put on full sheets of foundation. In my opinion, however, they would act similarly.—G. W. P.]

A. I. Root wants "reports encouraging." Well, here's mine: 124 colonies were increased to 284, and gave 18,466 pounds (20,051 sections) of honey. Putting it just as it was: 100 colonies run for honey gave 184½ pounds (200½ sections) per colony; and 24 colonies run for increase gave 666⅔ per cent increase. [This is, indeed, encouraging, and I congratulate you on such an excellent showing; but I think I am safe in saying it is away beyond your general average, season after season.]

When I first took charge of the journal we used to have a department called "Reports Encouraging." Nearly every one of our subscribers who had done well would send in his report some time during the season. Those who had obtained only meager results, or who had had a poor season, would, as a rule, keep still, for the average man does not like to parade his failures.

In the process of time I noticed we had complaints from our subscribers who said Reports Encouraging did not afford a fair index of the possibilities of bee-keeping, since bee-keepers would not report common or average results, because very few would send in their reports of failures for the department of "Reports Discouraging." My own view of the matter is that the statistical reports that we now gather from beekeepers from all over the country, who are in position to report for their own locality, summarized and given to the public *just after* the general honey-flow, are of much more value than these occasional reports telling of *good* or *extraordinary* yields. In other words, when one embarks in the business he should not base his expectations on the Reports Encouraging which are above the average, but on the reports based on a series of years or a report covering the entire country, giving the average of what has been done in nearly every portion of the United States.

Now, in saying all this I do think it is interesting and valuable to know what *can* be done and what has been done by expert bee keepers in a good year. Your report is one of the best, for the number of colonies, I ever read for this part of the country. To get an average of nearly 200 lbs. of comb honey per colony is something extraordinary for the Middle and Eastern States. Some parts of the West, especially California, have been known to show up an average of 400 lbs. for each of 500 colonies. Yes, I believe we had one report of an average of 500 lbs. from nearly 10 0 colonies.

Say, doctor, my, oh my! I note that you had 18,466 lbs., or 20,051 sections. Why didn't you have each of your sections weigh just an even full pound? Why, there must be something "rotten" in Marengo as well as in wicked Chicago—eh?—Ed.]



#### BRITISH BEE JOURNAL.

A correspondent asks the editor what constitutes a suitable place in which to keep honey; and he also wishes to know how to prevent cloudiness after granulation. The editor's answer is worth remembering:

The main point in preventing fermentation is to avoid storing away any honey not thoroughly well ripened. The thin portion, which rises to the top of the bulk, after being kept for a few days in a warm place, should be kept apart and used first. The thicker honey which, of course sinks to the bottom of the bulk, will keep and not be liable to ferment if kept in a fairly warm and dry place. When jarring off, i. e. the



stream of honey flow into the center of the jar, and not so quickly as to allow any vacuum for air between the honey and the sides of the jars.

Here's a way the English have of teaching the rising generation something about the mysteries of the hive; and it's a good way too—through “eye-gate,” as Dr. Talmage used to call it.

A lecture was given before the Children's Guild, at Manston School-room, Cross Gates, near Leeds, by Mr. Gilson, over seventy children being present, besides numerous bee keepers and adults. The lecture, which was one of a series on natural-history subjects, was illustrated by over thirty lantern slides; and Mr. Gilson told how the queen, living five years would lay from 200,000 to 400,000 eggs per annum (110 times her own weight); and as she often lays from 2000 to 3000 eggs per day, and sometimes twice her own weight, she lays during her lifetime upward of 1,500,000 eggs, which, if put end to end, would reach 1½ miles.

In speaking of pure English honey as contrasted with imitation honey, S. Baring-Gould, author of that celebrated hymn,

Onward, Christian soldiers,  
Marching as to war,

says in one of his books:

From the blossoms of the furze the bees derive their aromatic honey which makes that of Dartmoor supreme. Yet bee keeping is a difficulty there, owing to the gales that sweep the busy insects away, so that they fail to find their direction home. Only in sheltered hives can they be kept. The much cherished Swiss honey is a manufactured product of glycerine and pear juice; but Dartmoor honey is the sublimated essence of ambrosial sweetness in taste and savor, drawn from no other source than the chalice of the golden furze, and compounded with no adventitious matter.

Now, who has some Dartmoor honey for sale, either comb or extracted?

## EL COLMENERO ESPAÑOL.

Continuing his review of bee culture in the various countries of the world, the editor has this to say of Austria, which I take from the Spanish:

This country stands fully abreast with Germany so far as apiculture is concerned. The Emperor Francis Joseph is a great enthusiast in bee matters. He has brought the prestige of his office to bear on apiculture to the extent of instituting an academy in Vienna, for the advancement of a knowledge of bees. Over this academy the Emperor presides in person. In the various functions of his office he performs no small part in the development of apicultural interests.

The railroad companies of Austria have in their warehouses bee supplies, to be distributed among their hands who may wish to devote themselves to the care of bees; and there are railroads that are lined with apiaries belonging to the employees of said companies. The companies distribute premiums to reward those who make the best record in caring for bees.

Apicultural instruction is paid for by the state, and this teaching is done by professors who travel around from place to place.

The late Empress of Austria was equally enthusiastic in the study of the bee, and was an honorary member of at least some of the Austrian bee keepers' societies. The whole constitutes a very pleasing picture.

Speaking of Russia the editor says:

In Russia, from very early times theoretical and practical apicultural schools have been established; and the pupils therein according to an imperial decree of 1825, are exempt from military service. There are many thousand apiaries there, but most of them are conducted in the old-fashioned way; however, the modern ways of keeping bees on movable frames are much better known in Russia than in Spain.



## AN OUT-OF-SEASON CONVERSATION; PREVENTION OF AFTER-SWARMS.

“Say, Doolittle, have you been asleep?”

“Well, I generally sleep some each night. But why do you ask that question, Mr. Mills?”

“Because you told me last May that you would tell me in GLEANINGS during the summer something about preventing after-swarms, and you did not do it.”

“I did forget, surely. Do you remember now what you asked of me?”

“As nearly as I can remember I wished to know if a queen-cell just about to hatch, or a virgin queen, introduced into a hive immediately after its colony had cast a prime swarm, would not prevent after-swarming by the young queen tearing down the queen-cells left in the hive before they were ready to hatch; and, if so, would there not be a great advantage by furnishing the colony a laying queen much sooner than they would otherwise have one, besides stopping after-swarming?”

“Your question seems very simple, and easy to answer at first thought; but as I think longer and more closely on the matter I find it to embrace some of the most perplexing questions that ever come up to the thoughtful, practical apiarist.

“Why so? I do not understand.”

“Let us talk it over from a logical standpoint, and see what we can find out in the matter. Your question would assume that, if a queen-cell or virgin queen is given to a parent colony immediately after it has cast a swarm, said queen, from the cell or otherwise, will go to tearing down the queen-cells left in the hive when the swarm issued therefrom. Is this right?”

“Yes. That is as I intended.”

“I think this a mistake; for, in nineteen cases out of twenty, if the swarm is hived on a new stand the cells will *not* be torn down, and not once in three times where the old colony is removed to a new stand, the swarm being hived where the old colony stood—at least this has been my experience in a practice of nearly a third of a century.”

“I thought it would work, and neighbor Jones told me, when I put this question to him, that he was sure it would. Why will it not?”

“Because the bees do not want those cells torn down, for in them is cradled the choicest thing they have—something that they value more than they did their own dear mother, and that which sent her out from her own home to seek a new one in some strange land; and if they consider



those cells better than their own mother, are they now going to sacrifice them for any stranger, one on which they had bestowed no care or wish?"

"I had not thought about the matter in that light."

"No, they will not do it, only as they are forced to do so by being thrown out of a normal condition by having all of the field-bees drawn off by removal of the hive from its old stand, or by the apiarist cutting off all of these queen-cells. And even in this latter case they will often kill the virgin queen given, or destroy the cell, preferring to rear a queen from their own sisters in the egg or larval form, which still remain in the hive, rather than to accept a stranger."

"Then why should neighbor Jones tell me that the virgin queen would tear down all the queen-cells in the hive?"

"Probably because he had noticed some time that the queen-cells were torn down where a parent colony had given up sending out an after-swarm, as they very often do where a scarcity of honey follows the casting of the prime swarm. Then if an experience of over a score of years of careful watching is of any value I can only think that your neighbor Jones is mistaken in thinking that it is the queen that does the tearing-down of the cells, for it is only where the queen has access to queen-cells *without other bees*, or in very weak nuclei, that she does the work of tearing open the cells, the workers being the main agents along this cell-tearing line. All know, who are at all familiar with the inside workings of a colony of bees, that, when the bees wish to protect the queen-cells, they can do it against the wishes of the most enraged queen; and when they change their mind they are just as ready to secure the destruction of the inmates of the cells as is the enraged queen; so all hands turn to, and the inmates of the cells are dragged forth and cast out of the hive, with not even a single mourner. Whenever an introduced queen is accepted by the bees, of course the cells are all torn down, and all after-swarming given up; but the rule is that it does not work that way, but the cell or queen is destroyed; and unless they conclude not to swarm when the first of the queen-cells left when the swarm issued emerges from her cell, after-swarming is the result, just the same as it would have been had we not given the queen or cell, and we find we have had our labor for our pains."

"If this won't work, how are we to secure the desired end?"

"Outside of stopping after-swarming, there is generally no 'desired end' to be accomplished."

"How is that? Is not the succeeding in having a laying queen in a hive as soon after swarming as may be a desired end?"

"Well, that depends altogether upon the locality and the result in the end."

"What do you mean?"

"Just this: With a continuous honey-flow

from the time of swarming to the end of the season there might be some gain, provided the advantages were not lost by swarming again. With such a continued honey-flow the colony having such queen given to it would be far more likely to conclude to swarm again than would the one where the bees had their own way, and they did not get a laying queen till near the time the brood had all matured which was in the hive when the old queen left. Ask yourself what conditions bring about prime swarming, and you will understand this."

"But I do not know that I could answer such a question fully, did I thus ask it."

"Yes, you could. If you think a little you know that the conditions bringing about prime swarming are, plenty of brood in all stages, *plenty of bees of all ages*, and honey coming in from the fields. With any of these lacking, prime swarms rarely issue."

"Why did you emphasize plenty of bees of all ages?"

"Because, where the honey-flow keeps right up, and the bees take their own course, or all after-swarming is prevented by the apiarist cutting all queen-cells after the first young queen has emerged from her cell, the colony is without a laying queen from 18 to 20 days, as a rule, which makes a break in the usual emerging of bees for that length of time, so that, when the bees from the young queen begin to emerge from their cells, the hive does *not* contain *bees of all ages*, hence such a colony rarely ever swarms again that season unless more prolonged than we generally have it in most parts of the United States and Canada. But where a virgin queen is given, or a laying queen supplied immediately after the prime swarm issues, this break in bees is not very pronounced; hence colonies having such queens given them are quite likely to swarm with a prolonged honey-flow."

"But with a honey-flow of shorter duration would it not be an advantage?"

"I can not think so. Where the honey-flow is mainly from one or two sources, as it is in this locality, I think such giving of a queen a positive disadvantage, for the larvæ from her eggs are fed on honey which the bees are gathering from the fields, which otherwise would go into the sections, that these larvæ, when matured into bees, may become useless consumers of the honey of the hive, they having come on the stage of action after the honey harvest from bass-wood is past, and before fall flowers think of giving any honey."

"Well, there is more to this subject than I had any idea of. But explain a little further how it works in your locality where the bees are allowed their own way."

"Where a colony has its own way, no honey is consumed by larvæ for 20 days; hence that much more is saved to the bee-keeper, and the break in bees comes just at a time when their labor is not missed, no honey harvest being on at the time they become field laborers, while there are enough bees remaining in the hive to care for all

the brood the young queen produces, and this brood matures into bees in just the right time to take advantage of the honey-flow from fall flowers."

"I think I see now. You think the advantage comes in raising the bees to meet the honey-flows as they come."

"Yes, that is the point, exactly. A 'weather eye' sufficiently skilled to secure the maximum of bees just in time for the honey harvest, and as few at all other times as is consistent with this object, is something worth coveting by every practical apirist. And this can be done only by a thorough understanding of the inside working of a colony of bees, in connection with an equally thorough understanding and knowledge of the location or the locality we are in, bringing both so that they just dovetail in, just in the 'nick of time,' when the best possible results will accrue to the apirists who can so bring things together."



BANKS of loose snow around the entrances of hives do no harm; but after a warm spell the snow may melt and run into the entrances, and freeze, thus closing them hermetically tight. When it begins to thaw, it may be advisable to look to the entrances.

#### FORMALDEHYDE DISTINGUISHED FROM FORMALIN.

THERE is some confusion arising from the fact that the new cure for foul brood has apparently several different names. We hear of formaldehyde and of formalin, and we sometimes don't know which is which, so it may be well to know the chemistry of this. By oxidizing in alcohol, part of the hydrogen is taken out, leaving a substance called aldehyde, from *alcohol-dehydrogenatum*. Thus, when ordinary wood alcohol is oxidized, the product is a gas known as formic aldehyde, or abbreviated to formaldehyde. When this gas is dissolved in a liquid the solution is called formalin or formol.

#### BEEES THAT WILL NOT ROB; AN INTERESTING INCIDENT.

WHEN visiting Mr. F. H. Farmer, a manufacturer of high grade candies, of Boston, he showed me a row of hives in the rear of his manufacturing establishment. In warm weather, during a dearth of honey, the candy fumes may be detected several rods away from the building, especially if the windows are open. While, ordinarily, they are screened, sometimes they are not, and the bees could, if they would, go right through

the windows and help themselves to delicious candy; but Mr. Farmer assured me that they never nosed around nor offered to rob. Indeed, during a dearth of honey he has had nicely filled sections on top of the hives, and he has left them there right where the bees could help themselves if they would. Why don't they rob, then? Simply because the fumes of the candy are, as they pass through the windows, so strong and abundant that the bees have become accustomed to this peculiar aroma—so much accustomed to it, in fact, that they think nothing of *ordinary* sweet odors; indeed, I doubt if they can distinguish them any more than we could distinguish the sweet tones of a lullaby song when the band is playing—the one drowns out the other. They take it for granted that they *must* go to the combs or to the fields if they would earn their living, and to the fields they go when there is any honey to be had. When there is none, the same fume of candy, being so abundant and so common in their everyday experience, they never think it would be possible to help themselves, and they don't.

#### HONEY CANDIES.

Mr. Farmer is a very enthusiastic beekeeper, right in the heart of Boston. He is an expert candy-maker, employing quite a force of hands in making high grade confections. I told him that the bee-keeping fraternity in one way or another have expressed a wish that some candymaker would make a specialty of making first-class confections of honey. He promised to look into the matter, and I assured him if he would make them we would find a market; for I believe there are thousands of beekeepers all over the country who would like to encourage the industry of converting certain grades of honey into candy, and thus develop a new outlet.

#### A NEW GLUCOSE PREPARATION A COMPETITOR OF HONEY.

I RECENTLY made a trip up and down the Atlantic coast, going from Washington clear up into Maine. I was surprised to find a large amount of a cheap syrup on the market, designated by a catchy name, that is advertised as being sweeter and better than honey. It purports to be made of corn, for it is, in fact, a glucose preparation, and is not, therefore, subject to the laws against adulteration. It is, unfortunately, true that some—yes, many—grocers are buying it as a cheap syrup for pancakes, and it is possibly true that it will affect the sale of honey temporarily in some localities. I feel pretty well satisfied, however, that any glucose product cheap enough for commercial competition against the higher grades of sweets will be most injurious to the human stomach; and it may be true that the pure-food commissioners may condemn this. I have tasted some of it, and I do not think I could eat very much of it without some bad results. Well do I remember the three or four weeks of severe bilious attack re-



sulting from eating a good deal of glucose some years ago, to test its effect on my digestive apparatus. I do not anticipate that this new preparation, while perhaps more palatable, will be very much better. The brassy taste is there just the same, though to a certain extent disguised with a distinct flavor of New Orleans molasses that in itself is not unpleasant. The fact that it tastes better than the ordinary glucose, makes it all the more dangerous to the average consumer and the more hurtful to the beekeeping industry for the time being.

#### A POSSIBLE FAILURE OF THE HONEY CROP IN CUBA.

A LETTER received from one of our old GLEANINGS correspondents, Mr. Craycraft, who has been located in Cuba for many years, will explain itself:

It looks as if Cuba were destined at last to lose her heretofore undisputed claim of never failing to turn out a good honey crop. We are now at a date when a half of the crop should be harvested, and not a single barrel of the present season's gathering has arrived in the market; for, with the exception of that taken at your yards in Paso Real, and a small quantity from Taco Taco, the only honey received, either in Havana or Matanzas, has been from the early "cleaning up" extracting made early in the season when prospects were good for a bountiful flow.

We have had now over 35 days of continuous cool north winds and copious rains; the rains, however, reached only as far west as San Cristobal, while vegetation is shriveling up from lack of rain at Taco Taco and Paso Real. In this section of the country the white bellflower has opened but little; and if warmer weather does come soon, there is a chance yet for a good flow of honey from it. The trouble is, though, that colonies have contracted their brood-rearing so much as to be entirely too weak to do it justice, even if it does come.

I remember when I first came to Cuba, in 1891, and visited our late friend Mr. A. W. Osburn, who, I might mention, kept a very accurate record, both of temperature and atmospheric conditions. He showed me his diary (I forget whether of the winter of 1889 or 1890) which recorded a continuous norther of 47 days, beginning Dec. 12 and lasting until the latter part of January, during which time the bees got no honey whatever. When the weather did change, however, his record of extracting showed that he took 47 tierces before the close of the season.

It seems that we are having a repetition this year; and our only hope is that the coming spring will be as favorable as that one was. F. L. CRAYCRAFT.

Havana, Cuba, Dec. 21, 1903.

Here is another report along the same line:

As the end of the year is here I send in a report of results, for the benefit of the ones who are afraid of Cuban honey ruining the American market.

I have seen several thousand colonies in the last few days, and have heard from all the thousand-hive men I know of, as well as seeing a lot of them, and, being one of them myself, I am posted now as to what the honey crop will be, and can assure the scared ones that even if we do get the 20 per cent reduction in duty to-morrow, the American market will not be ruined this winter by Cuban honey.

The 20 per cent is just 4 cts. per gallon, as the duty is now 20 cts.; so with the reduction we shall still have to pay 16 cts on each gallon that goes from here to the United States. And by the way, Cuba has not had a single failure in 20 years the crop being a sure thing down here, or at least has been for 20 years, since the advent of the frame hive. But the failure has now come, and is here now. We are all aware of the fact. The Cuban bee-keepers are a gloomy set for the Christmas of 1903, and this winter will long be remembered by the bee men of Cuba as the winter that froze them out, not with real frost, but with a cool north wind week after week, right along, and it is still blowing almost a gale. Such a winter here no one remembers having seen before.

It is too cold in Cuba for the bees this time, as the early cool weather stopped brood-rearing right at the commencement of the honey-flow in October. The flowers are here as usual, but no bees to gather, and there will not be, as brood rearing has been down to two and three frames of brood to the hive for many weeks, and colonies are all weak; and as the flow is over with March, it is too late to make the bees for this crop of honey, and it is with us all failure this time. A gallon to the hive, instead of twenty, seems to be the cry this time. Some of the thousand-hive men have not taken that much—in fact, will not get any unless surprised.

These are cold clammy facts that will rest heavily on some of us, as we count our honey crop here a sure thing every time. Worse still, there lots of bees starving to death right now during the time of harvest—bee men buying sugar at Christmas to feed in harvest time. Such is this time Cuba's lot, and in the future there are not likely to be any more shipments of bees from the States to Cuba to get rich here raising honey to send to America, with the Cuban price for honey 2 cts. per lb., in spite of no honey to offer.

Comb honey this time has it "in the neck" even worse than extracted, and it won't get over this winter's freeze-out in a long time to come.

Bee-men are going begging down here, as the crop won't pay help, so some of the boys are hunting a job, while some have gone into the tobacco business as a surer thing than bee-.

Foul brood is doing but little damage this winter, and will generally be cleaned out in the spring, as the honey men will have to melt the combs into wax in order to live through the summer of 1904.

Caimito, Cuba, Dec. 15.

W. W. SOMERFORD.

#### CELLAR WINTERING AT MEDINA.

We have just been examining the bees in our three cellars. The winter has been rather severe. The December just passed has been one of the coldest known for many years. So far our indoor wintering has been very satisfactory. Very few bees are found on the cellar floors, and clusters are quiet. At the basswood yard cellar (built after the Bingham plan) we put in a ventilator shaft 16 inches square, running from the top of the roof down into the cellar. Last year we had a shaft only 4 inches square, with the result that the ventilation was poor and the wintering not good, and many dead bees on the cellar bottom.

At the Harrington yard the bees are in a very large old-fashioned cellar under a house, with no ventilator. It is so large that the atmosphere does not foul. These bees are doing finely.

In the cellar under the machine-shop, at the home yard, the results are good; but we found it necessary to open and close the doors at night during moderate or warm weather, to provide for sufficient ventilation on account of the large number of colonies confined. We kept the doors and windows shut at first, but found the bees were flying out and becoming uneasy. Then when we began ventilating every night during warm spells the bees quieted down, and have been quiet ever since. In cold weather, no opening and closing of doors seems to be required.

#### ANNUAL REPORT OF THE NATIONAL BEE-KEEPERS' ASSOCIATION; SOME INTERESTING FACTS AND STATISTICS.

THE last annual report of the National Bee-keepers' Association is by all odds the most elaborate that has ever been put out by this organization. Since General Manager

France has taken hold of it the membership has nearly doubled, and that within the space of one year.

The new Manager has looked after and defended, during the year, something like 35 distinct cases. In some of these an actual fight in the courts had to be made; in others a wise compromise has been effected; and in every case the National has made its influence felt for the good of apiculture in the country. The most important suits are outlined, and occupy quite a little space in the report.

The matter of adulteration has received a fair share of attention. The financial statement shows that on March 3 \$921.60 had been received from General Manager Secor; from Dr. Mason's estate, June 2, \$81.08; from membership dues, mostly at 50 cents each, by joining through local associations, \$739, making a total of \$1741.68. An itemized account of expenditures shows \$626.60, leaving a balance of \$1115.08 in the treasury.

The usual stories about adulterated comb honey have received proper attention at the hands of Mr. France. His denials have been respectful and yet straight to the point.

Next follows a list of all the supply-dealers, queen-breeders, and manufacturers, honey-dealers, bee keepers' associations, bee-journals published in the United States, and the last United States census relating to bees. All of this furnishes a very interesting array of information which will be very convenient to the members.

The last few pages of the report are particularly interesting in that they give not only the name and address of each member, but the number of colonies, fall count and spring count, tax valuation, and the amount of comb and extracted honey each has produced.

California leads off with the largest membership. Next follows New York, Illinois, Wisconsin, Colorado, Texas, Ontario, Minnesota, Utah, Iowa, Michigan, Ohio, and so on, clear down through the list.

Never before has there been such an interesting collection of statistics regarding the number of colonies and honey production of the most prominent bee-keepers of the United States. One is amazed, in looking over the California list, to see the actual amount of honey that was produced last year, and last season was only a fair one. Scores of bee-keepers produced from 20,000 to 25,000 lbs. of honey, mostly extracted. A few are credited with 50,000 to 60,000 lbs. The one who seems to carry off the palm in the whole membership of the National, for the largest crop of honey produced last season, is L. E. Mercer, of Ventura Co., Cal., who makes the enormous showing of 100,000 lbs. of extracted honey. Next comes W. D. Moffatt, with 80,000 lbs.; J. F. McIntyre and Joseph Moffatt, with 60,000 lbs. each.

It would be interesting to pursue this still further. Suffice it to say that no other

State shows such large crops and such large apiaries. Of course this was a fair year.\* But the other States that show large yields are Arizona, Colorado, and Texas. In Colorado, for example, M. A. Gill reports 75,000 lbs. of comb honey; in Arizona, Mr. Wm. Rührig 72,000 lbs. of extracted; in Texas, H. H. Hyde 75,000 lbs. of comb honey and 10,000 lbs. of extracted. In the central and eastern States, and portions of the middle West, aggregate crops are usually under 10,000 lbs., but many are over 15,000. But there are a great many bee-keepers to the square mile, and the probabilities are that the bee-keepers in these States, Iowa, New York, Illinois, Wisconsin, and Minnesota, will hold their own in the aggregate of honey produced. In New York, for example, we have just one bee-keeper who in his aggregate yield comes anywhere near the big yields of the Westerners. I refer to W. L. Coggs, who produced 1000 lbs. of comb honey and 56,000 lbs. of extracted. There are other reports that are left blank, either because the returns were not all in or because the bee-keepers did not care to announce what their crops were.

The big "bee guns" are rather shy about telling their actual yields; but General Manager France has succeeded somehow in getting their crop reports. And, by the way, I should not omit to say that Mr. France, besides being an excellent General Manager, is a bee-keeper of no mean order. Except W. L. Coggs he has the largest honey-crop showing of any bee-keeper in the central or eastern States. We find him credited with 54,000 lbs. of extracted honey, and that, too, in a State like Wisconsin, where the general average is under 10,000 lbs. Mr. France must be a tremendous worker. He is foul-brood inspector for his State; speaks at farmers' institutes during the winter, not only in his own State but in others as well (he is now booked for New York State). He manages the work of the National, taking charge of some 35 distinct cases of difficulty arising between beekeepers and their neighbors; got out this report, which must have taken much time, and then on top of it all he produced a crop of 54,000 lbs. of honey. It has been said that, if you want anything done, and done well, go to a busy man. That is just what the membership did when it selected Mr. N. E. France to be their standard-bearer.

The membership is to be congratulated certainly in having so excellent a man at the head of things. Very few could be found who would be willing to do so much work for so small a pay. Nothing but a love for the work and an intense loyalty for the interests of the members could induce a man to perform such a task.

Say, those of you who are not members are losing much. Better join the great family at once.

\* It should be remembered that California has only about one good and one fair year out of five. These showings must be considered in this light.





### MODERN QUEEN-REARING

As Practiced at the Root Co.'s Yards; a Brief and Comprehensive Treatise on the Latest and Best Methods, Gleaned from all Sources.  
Continued from Last Issue.

BY GEO. W. PHILLIPS.

About 14 cells should be placed on each frame, as shown in Fig. 5. The nail-points can be inserted into the same holes again and again, as the blocks have no strain on them, and the bees glue them down firmly as soon as they are put into the hive.

Now, let us consider the part that these wooden blocks play in simplifying queen-rearing. It is not necessary to "get up steam," and set wax to melting in order either to fasten the cells to them or to fast-

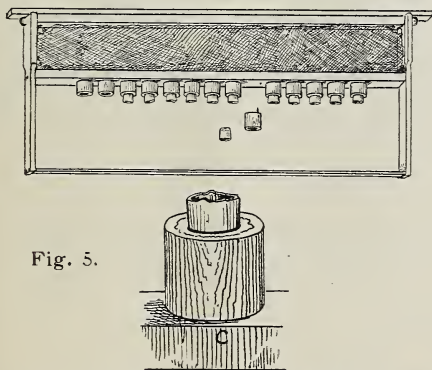


Fig. 5.

en them to the cell-frame. In this respect we have an advantage over many systems in vogue. They are easily transferred from one frame to another. Every queen-breeder should see the advantage of this feature. It enables us to regulate the cell-building according to the capacity of each colony. We often have colonies that will accept an almost unlimited number of cells, but are not capable of completing more than 12 satisfactorily. At the same time, there may be others capable of completing more, but not good at accepting. By using these wooden plugs, the accepted cells less than 24 hours old can be detached and distributed in the most advantageous manner. It is as annoying to let a good colony of bees fuss with a scant number of cells as to let a hen waste time by sitting on a nest of two or three eggs. Since using this system we have been able to get more cells completed by fewer colonies and with less work. We generally let each of our queen-rearing col-

onies complete 12 cells so that every colony has its time well occupied; and we never have to open a colony, remove the cell-frame, and brush off bees in order to take care of two or three ripe cells. Another advantage which the wooden cell-cups or cell-holders have, is that they can be removed and handled without risk of cutting into or breaking them, as in the case where the

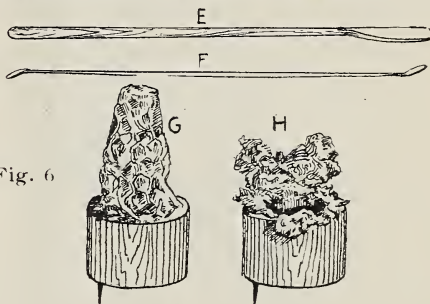


Fig. 6.

wax cells are fastened on in the old manner. In fact, the use of a knife is entirely done away with.

### GRAFTING.

The subject of grafting queen-cells has been gone over many times, and yet 50 per cent or more of the readers of GLEANINGS know little or nothing about it. I make this an excuse for going into details in this, which, to the expert, may seem elementary.

The first thing needed is royal jelly. At the start it will be necessary to make a colony queenless in order to get this; but when once operations are well started it can be obtained from the grafted cells, as in Fig. 6.

G represents an unsealed queen-cell. H shows the same broken open so as to facilitate the removal of the royal jelly. E represents the spoon for removing the royal jelly from cell H; and F, the little fellow, is the larva-lifter or "transferring-needle," as the artist has been pleased to call it.



Fig. 7.

Unsealed jelly must be used, and this should be stirred before using. One well-fed cell, taken just before it is sealed, will supply enough jelly for two frames of cells (28) or more. Royal jelly gets hard very soon after it is removed from the hive, there-

fore it should not be removed until the last minute. Where a lot of cells are to be grafted, the jelly for supplying them should not be removed from the hive all at one time, but several different graftings should be done, and only enough removed as required at each time. A great deal depends upon how quickly an operator can

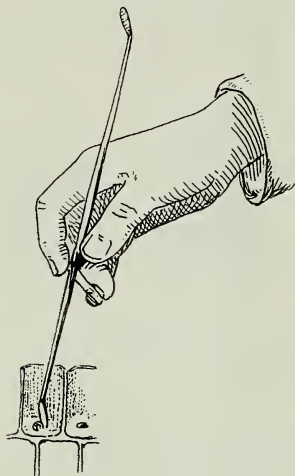


Fig. 8.

do the work. I can graft 112 cells before the jelly gets too hard for use, and others who are more dextrous can do more.

Fig. 7 gives a fair description of how the jelly is transferred to the cells. The section of the cell shown, the third from the left, illustrates nicely the right proportion of jelly that should be supplied to each cell. The jelly is removed from the unsealed cell in the first place, with the jelly-spoon, and the proportion designed for each cell is

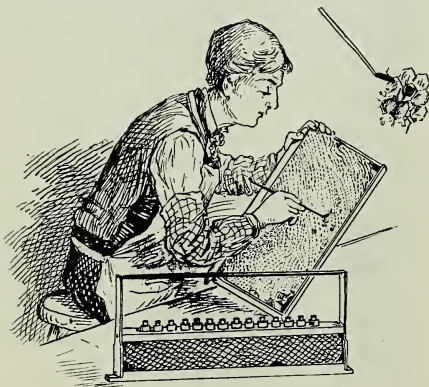


Fig. 9.

in turn picked off from this bulk and placed in position with the "transferring-needle."

A frame of select larvæ, not more than 36 hours old, should be chosen for grafting,

and should be right handy so that, as soon as the jelly is supplied to the cells, the larvæ will be at hand ready to be transposed to their new quarters.

Fig. 8 shows the manner in which the larva is removed from its cell. Rightly speaking, in this illustration the point of the larva-lifter should be a little further behind the larva—at just about the center of the curve in its body. Some use a little jelly on the point of their larva-lifter, and say that, by using it, the larva adheres to the instrument more readily; but for my part I prefer a clean dry lifter, especially if it is profusely fed. When the larva is removed from the comb it is placed in sweet contentment upon the little nest of royal jelly prepared for it in the cell-cups, and from that moment the life of the *worker* ceases and that of the *queen* begins.

Fig. 9 represents a bee-keeper at work grafting queen-cells. The comb should be held at such an angle that the light falls into the cells. There is no necessity of paring them down; a little practice will soon enable any one who has fair eyesight to lift out the larvæ from an ordinary comb with ease. At first the operation may cause you to look more perplexed than our friend in the picture does; but keep right at it; and if you have any of the stuff in you that goes to make a good bee-keeper, you will make a success of it, and in doing this you will have mastered the most important branch of the bee-keeping industry, and one that will add new profit as well as fascination to the pursuit of your choice.

(To be continued).

## AN EXPERIENCE IN PEDDLING HONEY.

An Interesting and Readable Account.

BY HARRY LATHROP.

I started out one day toward the west,  
Hoping to sell the product of my toil;  
And thought within myself that it were best  
To try to sell to tillers of the soil.

I went, but I returned with all my load,  
And more; for all along the winding way  
A heavy heart I carried on the road  
That led me home that fading autumn day.

Having read the experiences of different ones who have tried the plan of selling honey from house to house, I tried it this season with the following results. It was during the closing days of summer. The weather was fine, the roads good—that is, as good as our roads ever are here in Southern Wisconsin, where a drive across country consists principally in making dives down hills steep and long to cross small spring brooks, and then climb to the top of the next hill to repeat the operation. I was provided with a span of lively ponies and a neat spring wagon, in which I placed a few cases of honey in cans large and small; and in a box I had a small scale for weighing small lots. Thus equipped I started out



with high hopes of coming back with a light load and a pocket full of money.

My first stop was only a few miles from town where a saloon is kept at the crossing of the roads. I tried to make a sale to the proprietor of the place, but he declined with a look of disgust. It is a fact that people who are given to indulgence in beer and tobacco, and such things, have no taste for honey, and seldom touch it. Their tastes are perverted, and nature serves them right by depriving them of the power to appreciate her choicest dainties, of which honey stands at the head.

But, to go on with my story. The next stop was made at a cheese-factory. I could not sell to the people who lived there, for they possessed a colony of bees, and had produced more honey than fourteen families could use. But I was directed to a farm where no bees were kept, and on the way I kept thinking, "Now, this is my chance. I will make a sale this time." The house was half a mile from the main road, and down in one of those ravines. I made the dive, and anchored the team up against a strawstack while I went to the house with a small can of honey. The lady received me kindly, and said she would like to have some honey, but her husband was away, and she never purchased any thing without his consent. She thought he would soon be back, and wished I would wait. My time was too precious to wait there for the bare chance of selling twenty-five cents' worth of honey, so I called for a small dish and poured out as much as the woman could eat at one meal or more, and went on my way thinking, "Shame on the man who will not allow his wife so much liberty as the purchase of a little honey! Such men never consult their wives when they buy tobacco, or, worse, stand in front of a bar and buy drinks."

At the next place I did not get out of the wagon, but called to a woman at the door of her house. I told her what I had, "extracted honey—the very finest quality." She would not buy, but she said if I had comb honey she would take *one pound*. I went on, but met with no success. It came near night, and presently I crossed a little clear running brook and drew up in front of a house that was shaded by an immense willow. Back of the house rose a great bluff, and on its lower slope there was a row of about a dozen bee-hives of all shapes and sizes. There were children in plenty, boys and girls, and I soon got into conversation with them and learned which one of the boys it was who took to bee-keeping. It was a family of Swiss people engaged for the most part in dairying. They were milking 35 cows at the time. I asked the giant farmer how it would be for me to stay with him over night and help milk the cows. His ready "yah!" gave no uncertain sound of welcome; so, within ten minutes from that time my team was in the barn, the wagon safe in the shed, and I was down under a big cow milking away, and think-

ing to myself that it would be a hard matter to starve a Yankee or the son of a Yankee.

Those cows gave great messes, more than a large pailful for the best milkers, and no wonder; for the rich grasses all over the hills and valleys reached to their knees. That night I milked two cows and the next morning five. There were several boys and girls who milked, besides the farmer, and it took only half an hour to do it all up. As much time as we had that evening and the next morning, I talked bees with the boys, giving them the best advice and instruction I could, and I felt that I had fallen among friends whose hearts were without guile. Before I left they bought a gallon of honey, the first I had sold, and refused any thing in payment for my lodging.

Only ten years from the old country, this man is bound to succeed. He has purchased a large farm, going largely in debt for it; but at the time I was there the income from milk and eggs was over seven dollars per day, and no outside help hired, with the exception of one small boy to help do chores.

The next day I continued on till noon, going still further from home, and made but one sale of half a gallon of honey. At many places I was informed that they had honey, or that some relative kept bees, and they could get all they wanted for the asking. I started for home with the firm belief that a man starting across the country with a load of honey, and traveling day after day, could not possibly sell enough to pay his expenses, even if he got the stock for nothing.

I came to the conclusion that we must look to the towns and cities for our market. Farmers as a class will not buy honey. They will go without, and use, instead, glucose syrup that they buy at the village store at about 35 cents per gallon—stuff that has no flavor, and nothing to recommend it but its resemblance to something good.

On this trip I was not sad or discouraged, except in reference to the matter of selling honey. In another way I was more than paid for my trouble. I feasted my eyes on as lovely scenery as the sun ever shone on, and found new friends that even now seem like old ones.

I can sell honey, and am doing it right along—sending it to all points of the compass; but peddling is not my way. Let the other fellow peddle. I will sell to jobbers, merchants, consumers, anybody; but they must come to me in the future.

¶ Monroe, Wis., Oct. 19.

[Your experience, friend L., is, I think, about the same as the most of us would have; and yet it is possible that, if you were to take another route, you might have an entirely different experience. There is a great difference in people. Some are born salesmen, and others can do better in some other line.—ED.]

### COGGSHALL STUDENT BEE-KEEPER.

A few of Coggshall's Short Cuts; Kicking Supers off; how to make an Uncapping-can of a Keg.

BY LOUIS F. WAHL.

After I became interested in bee-keeping I subscribed for GLEANINGS, where I saw a notice of the Ontario Co. Bee-keepers' Association, and was fortunate in meeting W. L. Coggshall, and engaged to work for him during the buckwheat season of 1900. The bee-fever was so contagious there that I could not escape catching it, and have no hopes of recovery.

This year I felt the need of reviewing my enthusiasm and learning a few more of his short cuts.

During one week with him this year, W. L., Archie Coggshall, and I drove a distance of about 75 miles, extracted 11,500 lbs. of honey from 7 apiaries, numbering about 600 colonies. This being the close of the

overalls and jumper in one complete suit, that just buttons in front; a pair of bicycle pants-guards; and a black bobinet veil, with sometimes a pair of gloves added.

You will see by the engraving that my method is practically the same as Coggshall's, so I have little to say now about my method. There are a few things that I do differently, being led astray by false prophets, and, like Saul's conversion on his way to Damascus, it is hard for me to kick against the pricks.

I am about through buying stuff that is costly, for quick and practical work. On a visit to Mr. Coggshall's and I. L. Schofield's, he showed us several things he bought and put away, never using them. One was an uncapping-can with a rigging to hold the frame. It made me laugh, and I thought I wasn't the only black sheep in the flock. Just look at the keg in the engraving of the inside of my honey-house, with a narrow piece of board on the top to rest the frame on. When it is



BEE-YARD OF LOUIS F. WAHL, CHILI CENTRE, N. Y.

harvest, and right after the heavy wind and rain storms, our best day was 3000 lbs. I took off all the combs and supers, wheeled them in, and received only about a dozen stings, and used the kick act too. Most people do their kicking over general opinions, and don't use it in the right place.

Right here is an important point: After a colony is once subdued by a little smoke which is puffed under the oilcloth covering while flopping it, and the frames taken out, no matter how much kicking is done with the super any more than prying it with a screwdriver or hive-tool.

But one thing I noticed in particular. The bees were more vicious on the ends of some rows where the skunks had been at work. On page 760 F. Greiner speaks of Dr. Miller's bee-suit not meeting the requirements of Coggshall. Well, the suit that does meet his requirements is a white duck combination suit, or double-decker

full, stir it up like mincemeat; put a screen on top and turn it upside down over the store-can, and it will drain out as dry as powder.

I am one of the twelve that W. L. spoke of on page 758, who made a success in the bee-business by reading the bee-journals from cover to cover. There is one thing about reading that we need—some method of keeping track of things so we don't forget.

I have 70 colonies in my home apiary, and 55 in my out-apiary. I am peddling extracted amber honey at 15 cts. without package, or \$1.50 per gallon. I sell from 70 to 80 lbs. a day, and will tell later how I do it.

Chili Centre, N. Y.

[Your uncapping-can (keg), or perhaps it is Coggshall's, is a very good arrangement, and I don't doubt it fulfills a very excellent purpose.]



When I was present at one of Coggs'shalls' extractings the bees were very cross, especially so when Mr. Coggs'shall began kicking off the supers. But he told me afterward he was having a little fun at my expense—that he wanted to warm a bee editor with a few stings, and he did. I thought there was something sinister in his movements at the time, but I was not sure. I shall be glad to know that the "kick off" can be worked so professionally as not to stir up the bees.—ED.]

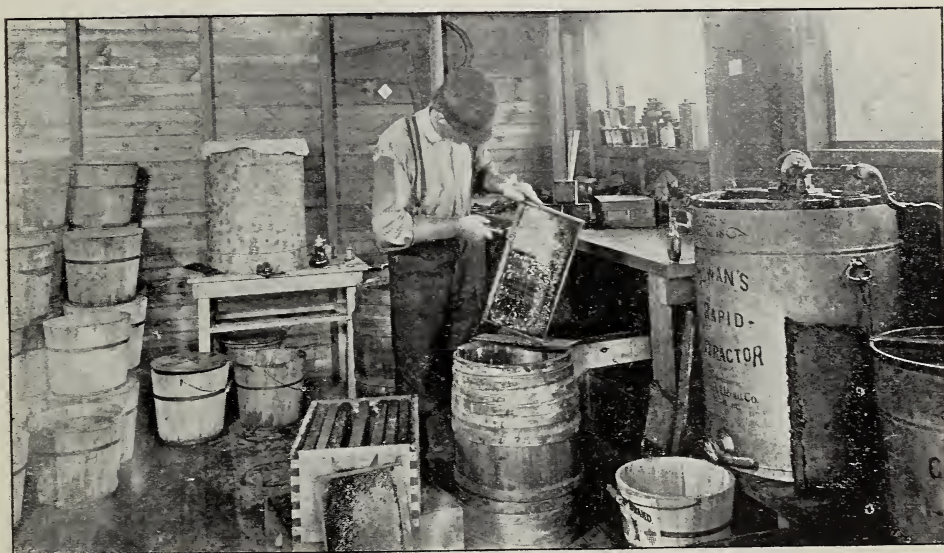
### THE SECTIONAL BROOD-CHAMBER.

A Retraction by One who has Advocated the Shallow Brood-chamber.

BY F. GREINER.

The subject of shallow sectional brood-chambers has been brought up again of late by such prominent writers as A. C. Miller, F. L. Thompson, W. K. Morrison,

To overcome the trouble in poor honey seasons I have of late put the dummies over to one side of the brood-chamber; and when I noticed the bees neglecting the sections over the dummies I turned the section-case half way around, which manipulation required but a moment's time, and brought the nearly finished boxes over the dummies and the neglected ones over the brood. I would also state here that I have gone back on extreme contraction. Even when excluding honey-boards are used with less than seven L. frames or their equivalent, pollen is not unfrequently stored in sections; and when no excluder is used, brood is reared in them. When absolutely no drone comb is allowed in the brood-chamber as practiced or advocated by Mr. Morrison, the bees seem to be determined to rear their allowance of drones in the sections; and although they may build comb or draw out the drone foundation in the super, this comb is left empty for a long time. Evidently the bees do not comprehend why



LOUIS F. WAHL IN HIS EXTRACTING-ROOM.

in different bee-periodicals. I have myself been singing the praises of the half-story brood-chamber, and been very enthusiastic over the advantages it offered. But while seeing them I somehow overlooked or underrated the disadvantages. They, however, have made themselves felt late, and my enthusiasm has worn off. I am about ready to go back to the full-depth frame, ordinarily using a single story for brood-rearing, and contracting by dummies when desirable. It is very true that the sections over the dummies are sometimes not finished up as quickly as those directly over the brood; but when the season is good, we don't experience any trouble along this line.

the queen does not use it for depositing eggs in, and keep waiting and waiting. Mr. Morrison's theory, therefore, does not seem plausible to me. When bees build drone comb for the purpose of rearing drones in the same, they do not use it for storing very soon, and they also use a greater or an undue amount of wax in constructing it. Both are undesirable. Mr. Morrison is also compelled to use a queen-excluder, another undesirable thing. Considering the top surface of his hive, this queen-excluder must of necessity be more expensive. The same would hold true of the hive-cover.

The shallow brood-chamber Mr. Morri-

son uses is of the same capacity as an eight-frame L. hive containing 14 frames. This makes a large body to handle by the brood-chamber instead of by the frame, and only a giant would be equal to the task. It strikes me that he will have to shake each one of his 14 frames singly, just the same as one with a Quinby frame. Why Mr. Morrison should fancy the shaking of a Quinby frame more difficult than that of his shallow frame, I can not understand. It is true I can lift one pound easier than two; i. e., two pounds weigh more than one; but I'd just as soon stoop down and pick up the two pounds as the one if stoop I must; and the bee-keeper of ordinary strength will just as soon shake one frame as the other, and will get along as easily, and more speedily with the tall frame as Mr. Morrison does with his shallow frame. He will have the advantage of having to shake but half the number.

It is one of the great advantages of the large frame that all frame manipulations are conducted with greater speed considering the amount of comb surface gone over. I can find a queen much easier in a single-story full-depth frame hive than in a shallow-frame hive of equal capacity, whether in single story or double.

Speaking of his large shallow-framed hive, Mr. Morrison says, on page 672:

The way to use such a hive is easy. During the winter or off season one chamber is used; but when the swarming season arrives, the second chamber with drawn combs is added *from below*. This is a damper to the swarming fever. Later on, when the upper half has become pretty well filled with honey, it is removed and then a super of sections is put on. Here we have a shaken swarm without the shaking—at least, the only shaking is in shaking the bees out of the upper chamber.

Handling bees in New York, I have observed when adding an empty set of combs below the occupied brood-chamber the bees are many times slow, very slow, taking possession of it. I have seen such combs neglected through the better part of the honey season. Even with my six-inch brood-chambers I have experienced this trouble. On the other hand, when such combs are added on top they are usually promptly occupied.

When Mr. Morrison reduces his two-story hive down to one story he terms this manipulation "shaking swarms." Of course, he does shake 14 frames; but the other 14 are left untouched, and so the operation would hardly come under the head of shaking swarms. The manipulation will prove very effective later in the season when the desire of swarming has entirely died out, or with colonies that have just reared a young queen, no matter how populous they may be; but with normal colonies at the swarming season the plan fails here.

When Mr. Morrison really has to make a shaken swarm he will have to shake 28 frames. Fancy shaking 28 frames separately with a large number of colonies when work is pressing and time exceedingly scarce and valuable! I have done it, and don't care for any more. With the regular

Heddon hive one may shake the larger part of the bees from a brood-chamber without handling frames singly. It is just small enough for the average man; but even with this hive it is not a safe way of doing, for the queen may be left in one or the other of the sections. With Mr. M.'s large hive the operation by hives is impracticable.

Mr. Morrison wants a super to hold about 50 pounds. In this locality a super of such capacity is too large, for the reason that swarms can not be depended upon to fill it in a single season. In a good honey location such a super is perhaps all right. It is quite evident that different localities require different hives to obtain best results. For this reason alone the catalogs of the supply-dealers will always contain more or less different patterns of hives and supers.

There is one thing in Mr. Morrison's article which I wish were true; but I am afraid it is too good to be true. He says, page 673:

The whole theory of management is simply this—to work up the colony to a high pitch in two chambers, then when the honey comes on in full blast, remove one chamber and put the section super in place. *This stops swarming* very effectually; and, as a consequence, very well well-filled sections.

The *bête noire* of a comb-honey apiarist is the habit the bees have of storing honey in the brood-chamber. The shallow hive holds this in check. Where only two chambers are used, there will be a fair amount of swarming; but where three are used, the apiarist holds the whip hand.

With a deep frame and wider spacing, the management described does not achieve such results in New York; and if Mr. M.'s shallow-frame hive with  $1\frac{1}{4}$ -inch spacing accomplishes what he says it will, *the great question of how to manage out-apiaries*, or any apiaries intended to be run for honey, *is solved*. Indeed, I would not hesitate long to break up every last hive of mine into kindling, and order Morrison hives to replace them, if I were assured of such remarkable results. I believe Dr. Miller and hundreds of other bee-keepers would join in with me. Dr. Miller would not have to look any longer for a non-swarming bee, because the bee would not swarm.

If there are half a dozen bee-keepers located in as many different States, willing to test the Morrison hive and his method, I will be one. Perhaps the Root Co. would be willing to get up the hive according to Mr. Morrison's instructions. Of course, we want them right.

It would not be desirable to take a section of larger proportions than we have now in-to use; and in order not to adopt an odd-sized section, I would suggest using the regular  $3\frac{3}{8} \times 5$  section in double tier. My preference would also be a wide frame super. Such a one would make it easy to put into practical use Mr. Morrison's idea of having but one size of hive-bodies. In fact, I have made use of this principle for years in my own half-story hives, which I am ready to abandon.

Naples, N. Y.

[In making comparisons of the sectional brood-chambers or shallow hives a good



deal depends on the depth of the frame or hive. The extremely shallow frames of five or six inches seem to be pretty well ruled out of practice as being too much of a good thing. But there are many who like a frame about  $7\frac{1}{2}$  inches, and among them is G. W. Brodbeck, one of the leading beekeepers of California. Such men prefer a frame of that depth for either comb or extracted honey.

This whole question is an interesting one, and I should be glad to hear from others of our subscribers, both those who have tried the sectional brood-chambers and abandoned them, and those who have tried them and like them.—Ed.]

### PICKLED BROOD.

A very Interesting Case, Accompanied by some Valuable Suggestions; Pollen not Removed by Soaking in Water.

BY C. F. BENDER.

As I have had what seems to be a rather unusual experience with pickled brood, I will try to set forth what I have learned, for the benefit of others—to give others, if possible, the advantage of that experience, without the cost.

About the middle of last March I cleaned up the combs and hives of fifteen colonies which had died by being buried under a snowdrift. Many of the combs were old, and nearly all were heavy with pollen, but with only a little honey. Two or three of the combs from one hive contained some dead brood, mostly unsealed. Supposing this to be chilled brood, as it may have been, I paid little attention to it; but I hung all the combs together in the honey-house, to wait for warm weather.

When the bees began to get pollen in the spring, I went over the whole apiary; and as there were many weak colonies I took away a part of the combs from them, leaving only as many as they could cover, putting the spare combs with the others in the honey-house. There were no signs of disease in any of the hives at this time. When warm weather had become settled, and some of the bees had begun to need more room, I was troubled quite a little at there being so much pollen in those old combs, especially as some of it was rather moldy.

About this time I read Mr. Doolittle's advice as to getting pollen out of old combs, and proceeded to follow it—to my sorrow. I filled a barrel with the combs, after extracting such as contained honey; poured in water to cover them, and left them to soak for 48 hours. Then I tried the extractor; but the pollen wouldn't come out for any kind of turning. I gave them three days more soaking, and tried again, with the same result. Then I used salt water, so the combs wouldn't sour, and soaked them several days longer, but could throw out only a small part of the pollen by vigorous turning.

I took the soaked combs out and dried them, such as had not been ruined by the process, and used them to fill out the hives which had begun to need more room. And now my troubles began.

In about a week every hive to which these combs had been given began to show dead brood. In some the brood all died immediately; in others the disease progressed more slowly, but none the less surely. The brood always remained healthy until after the third day of the larval stage, but almost always died before sealing over. Even in those cases which were mild at first, the disease always progressed until there was no healthy brood in the hive, or very little, except that which was too young to take it. There was a strong smell like pork-brine in all the cases—no ropiness of the dead larvæ. The affection did not seem to be very contagious, as there were no cases except those infected by the introduced combs.

After growing cultures of the mold I was convinced that the trouble was pickled brood; but to make the matter a certainty I sent samples to Dr. Howard, who confirmed my diagnosis. Now for the treatment: I shook several swarms on full sheets of foundation, and nearly all of them remained free from the disease. One or two took it again later on.

But I wished, if possible, to save the infected combs, so I began to experiment. I picked out enough combs containing no dead brood for five colonies; fumigated them with sulphur, and shook diseased colonies on them. The greater part of them took the disease again. Then I used combs containing no pollen or honey, fumigated in the same way. This was successful where the combs were nearly new, not otherwise. To give all my experiments would take several pages of GLEANINGS; but my conclusions will be shorter, and perhaps more interesting.

I found that I could not safely use the infected combs over again, even if they were free from pollen and dead brood, unless they were nearly new. I tried fumigating with formaldehyde gas, in a box as nearly air-tight as I could make it; but the results were not satisfactory. I am sure that, for pickled brood at least, formalin is nearly useless. It succeeds sometimes, but too often fails. I had much better success by fumigating with burning sulphur. And let me say right here that you had better not trust to formalin in any disease where the combs contain either dead brood, pollen, or honey. Even the manufacturers of the drug do not claim for it much penetrating power. The only safe rule is to destroy all old combs, and give the bees empty frames or foundation. Even if you have never had any bee-disease, it will be safer to fumigate all old combs with sulphur before returning them to the bees.

There is one thing that I rather hesitate about mentioning, because I am not quite sure of it yet; and even if it is true, I can

see no reason for it. That is, if these bad cases of pickled brood are left entirely alone they seem to reach a climax and get well of themselves. Two or three cases, after they had lost all their brood and half the mature bees, got well of themselves without treatment; while many of those that were repeatedly shaken on fresh combs kept the disease all summer. I did not notice this until late in the season, and had not time to verify it more fully.

Some colonies seem almost entirely immune, and will clean up badly infected combs without taking the disease. The Italians seem less susceptible to it than the blacks, though I had one case in a colony of pure blood.

I think it is better to burn the infected combs, as one is quite likely to spread the contagion in melting them up, and it is a disagreeable business where they are full of dead brood.

I wish Dr. Howard or some one else would tell us what this mold grows on outside the hive. In my case the infection could hardly have come from other bees. But wherever it came from, it was certainly spread by soaking all the combs in one vessel, and afterward distributing them among the bees.

Newman, Ill.

[I had never before supposed that pickled brood was so difficult to handle, although the cure that I have recommended has been to put bees on frames of foundation the same as we do for foul brood. It is inter-

esting to know that the treatment in your case worked satisfactorily.

It seems very plain how the disease was scattered; viz., that the one colony that had the chilled or dead brood must have had pickled brood; and when you soaked the combs of this colony along with the combs of other colonies you thereby spread the disease from comb to comb. But I am surprised to know that the soaking did not loosen the pollen to such an extent that it could be removed when put in an extractor. Possibly the pollen was of a peculiar kind.

You have given us an interesting array of facts; and I am sure the bee-keepers of the country owe you a vote of thanks for the careful way in which you have tested out all of these various things, and reported.—  
En.]

#### A SHED-APIARY IN ARIZONA.

An Extracting-wagon for Migratory Bee-keeping.

BY W. D. JEFFERSON.

The cost of the running-gear of my wagon was \$45.00; extracting-house, labor, and lumber, \$55.10. That includes a tank that rests right under a table where all the uncapping is done, and the cappings then drain right in the tank underneath. Then we have a spout soldered in the bottom of the tank, and have a 1½-inch hose that slips over the spout. A hole cut in the side of the extracting-house permits putting the hose out to let the honey run out of that



W. D. JEFFERSON'S HOME, AND ONE OF



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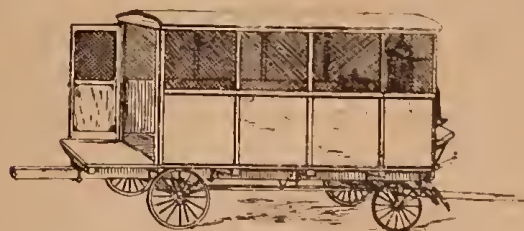
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tank into the other wagon, which has a tank on it that holds 200 gallons; and when it is filled it is hauled home. The storage-tank in the *extracting-wagon* holds 177 gallons. So in that way we just keep right on extracting, and do not have to wait for the



JEFFERSON'S EXTRACTING-WAGON FOR MIGRATORY BEE-KEEPING.

honey-wagon to return, and that renders it unnecessary to haul the extracting-wagon to the ranch. Then we have a spout fixed in the honey-wagon tank, and a hose fixed on it so that, when the wagon goes to the ranch loaded with honey, we can throw the hose over into the storage-tank, and in six hours our wagon is unloaded. We never have any pouring and consequent wasting of honey; and our extractor is arranged so it is a little higher than the storage-tank in the extracting-house. We have a tin pipe that carries the honey from the extractor to the storage-tank and uncapping-table. Our storage-tank at the ranch holds 1100 gallons.

W. D. JEFFERSON.

Safford, Ariz., Dec. 12.

[I am going to have a lot to tell you about Graham Valley a little later on; but just now I want to tell you something about that extracting-wagon and Bro. Jefferson and his family.

I reached Safford one forenoon, and after a little inquiry I hunted up the little brick house you see in the picture. The good wife told me that Mr. Jefferson, with his boys, was off about three miles extracting honey at one of the outyards. There were three ways to get there; namely, on foot, ride a bicycle, or take a horse. The trouble with the two former methods was the irrigating-ditches, which had overflowed the roads in many places, and I might have to wade. That is one of the drawbacks in the way of good roads all through Arizona, so I chose the horse. In due time I found the apiary right in the midst of great alfalfa-fields in full bloom, and the honey was coming in at a good jog. His two boys took the combs out of the hives, and carried them on the wheelbarrow, which you see in the picture, up to the extracting-house on wheels. Bro. Jefferson was inside taking out the honey.

With his boys to help, Bro. Jefferson makes every thing go very nicely. Soon after I reached there it happened to be dinner-time, and the dinner was already cooking out in a grove of trees. The first thing to attract my attention was a shallow kettle standing in a bed of coals. On top of the kettle was an iron cover, and on this cover they had heaped coals of fire. True to my Yankee instinct I began making in-



W. D. JEFFERSON'S HOME, AND ONE OF HIS APIARIES IN SAFFORD, GRAHAM CO., ARIZONA.



quiries about that kettle with coals on top and underneath.

"Why, Bro. Root, didn't you ever see a baking-kettle before?"

I had to confess I never did that—is, I do not remember it. I might have seen something of the kind in my early childhood. After I thought of it awhile it did seem to bring up recollections of long ago. Well, the hot cakes from that baking-kettle with butter and *honey* were A No. 1. And then we had some eggs cooked backwoods fashion. After dinner the boys took the honey home; and after friend Jefferson had asked if I was good on a walk he took me through the alfalfa-fields and fruit-orchards over to his home. As I am going to write up the fruit industry of Graham Valley later on, I will not mention any more of it here. But the walk through the fields and orchards was one to be remembered.

When I first reached Bro. Jefferson's home I noticed quite a lot of children around. I supposed likely they belonged to the neighbors; but pretty soon I found there were *nine* in the family, and yet Mrs. J. is still quite a young-looking woman; I decided that his home might present one encouraging feature to our good President Roosevelt as well as to A. I. R. You see the mother in the picture with the youngest in her arms. Right by her side is the eldest, a bright young lady. Now, I can not be sure that *all* of those little folks belong to friend Jefferson and his wife; but it is not unlikely. See how many you can count up.

I have told you before that I got to be very much in love with the fashion in Arizona of sleeping outdoors. They told me I could sleep out of doors at the time of my visit; but the good wife rather thought I should be more comfortable with my bed right in front of the door that you can see right back of the young lady. I happened to get up rather early in the morning, and I caught a glimpse of the place where a great part of the Jefferson children slept. I do not suppose anybody will object if I tell about it. The house has an L to it, as you will notice, back of the extracting-wagon. Well, in the corner of the L there is a broad porch; and the young Jeffersons spread their beds out on that porch. In fact, the porch was about *full* that morning when I happened to cross the back yard. As each youngster wakes up to his day's work, his first job, if I caught on correctly, is to "take up his bed and walk." Then right beside their sleeping apartment is a wash-basin, and plenty of soap and water. The arrangement makes things easier, you see, for a mother with a large family.

Friend Jefferson did not tell us in his letter about his out-apiaries, as I wanted to have him do and expected he would; but, if I am correct, there are three, apiaries and about 500 colonies in all; and I tell you that family of nine comes awful handy to a man with three apiaries. The father seems to recognize the responsibility that

rests on him, and tries to do his duty. After I became somewhat acquainted, Uncle Amos was called on to decide a perplexing question. It was something like this: How late should a father permit a daughter of seventeen or eighteen to be out evenings with a nice young man as an escort? It rejoiced my heart to see that the daughter obeyed her father strictly to the letter, even if she thought he was drawing the lines a little too closely; and after hearing all the facts in the case, the mother and daughter exchanged some bright glances when Uncle Amos was forced to decide in favor of the daughter's view. Notwithstanding, I told them it was a grand thing to have a father who erred on the side of being *too* careful of his grown-up girls rather than one who is inclined to be *careless* instead of careful.

Friend Jefferson bought the running-gears for his wagon I think of Montgomery Ward & Co. If you look close at the doorway, right out in front of the young lady and her mother, you will notice an inclosure made of bricks set with their corners uppermost. Inside of this inclosure friend Jefferson has started a lawn by setting out plants of *Lippia repens*. Each plant has covered a circle more than a yard across with beautiful bright vivid green, with a soft carpet-like foliage. The plant sends out runners somewhat like the strawberry, and they root very readily and multiply rapidly. Any of these rooted vines may be taken off and planted anywhere. With a little shading and watering they take hold and grow. He expects to have a dense-green lawn that will keep its luxuriance with very little water, and it is a lawn that is going to yield honey—at least, so we are told.

In the small cut our engraver has endeavored to present the wagon by itself. You see it is all covered with wire cloth above the lower solid panels. Bee-escapes are arranged so that bees that get in on the combs readily find their way out, and are thus out of the way.—A. I. R.]

#### HOW TO KEEP HONEY FROM CANDYING.

Treatment for Paralysis and Black and Pickled Brood.

BY HENRY ALLEY.

On page 968, in a footnote at the end of H. G. Quirin's article, you say, "Some two or three years ago Mr. Henry Alley announced that he had a process for keeping honey liquid indefinitely under all conditions. He did not immediately make it public; but when he did, it was nothing more nor less than keeping the honey in a warm temperature *for a period of thirty or sixty days, and then sealing.*" I have put those words in italics which I did not say. I never made a statement of that kind in or out of print. My process for preventing honey candying the *second* time is this:



I put in a Root extractor 150 lbs. of candied (or partly candied) honey. The extractor is then placed about 20 inches above the floor, or high enough so that an oil-stove can be used under the extractor, and yet not come too near the metal to burn the honey, as you know that overheating destroys the flavor of honey. The honey is thoroughly melted, or dissolved, and then heated to a temperature of about 125°. It is then drawn off into bottles, and quickly corked up or sealed with the cork stopper only. I never use anything to seal the bottles. I then place the bottles in a place where the honey will keep warm until I have a chance to dispose of it.

I had an idea that this part of the process was what caused the honey to retain the liquid state. Some two years ago I found that the heating process was the secret of preserving honey, provided it was "corked up" while hot.

Honey treated as above will keep in the liquid state a long time. I do not think this process will have much effect on some kinds of honey—goldenrod, for instance. I think it a good idea for those bee-keepers who sell honey, either at retail or to the grocers, to inform them how to keep the honey after they have purchased it. I never fail to tell all my patrons to keep the honey in a warm dry place. About the first thing purchasers of honey do is to put it in the cellar, both comb and bottled honey. I sold a grocer some bottled honey a few days ago. He said he had some honey in the comb in his cellar. One of the clerks was sent for it. It was in pound sections, and all of it looked as though it had been taken out of brine.

By heating honey as above stated I find it very easy to run it into bottles. I can fill 100 bottles in less than half an hour. The fact is, cold honey can not be put in bottles at all. When my honey is hot enough to work all right I just put the bottles within easy reach at my left; fill them and place them on my right. I take a seat in front of the tank; and as one bottle is filling I drive a cork in the previous bottle, and at the same time set another bottle ready to place under the faucet when one is removed. It takes but a very short time to run 150 lbs. of honey into ½-lb. bottles.

GLEANINGS is a good paper. There are many good things in its columns. I believe, however, that you all are away behind in curing bee diseases. I refer to foul brood, pickled brood, black brood, and paralysis. I am quite sure I can give the bee-keepers of the world some very valuable points on this question. My time is largely taken up in summer in rearing queens; but if I find any thing unusual in the apiary that needs investigating, and calls for experiment, I at once give it attention. I am not so sure about the cure of foul brood by my process, as I have had none in my apiary for 35 years. I have seen black brood, and that I bought and paid for dearly, and on that I have experimented with good success. I never open a stock of bees

and fail to look for dead brood. When I find but even one cell containing a dead larva the bees and combs are subjected to treatment.

I believe any case of foul brood will yield to proper treatment with lysol or phenol. No one has ever used those remedies as I would in case I had a case of foul brood.

By my treatment of black and pickled brood, also paralysis, the combs are quickly cleansed of all dead larvæ. Since I used the treatment, some four years, not one dead larva has appeared in my hives.

Last June I purchased a colony of black bees. Going by the hive one day I noticed that the entire front of the hive was covered with bees, all shaking violently. I at once fixed up a dose, and commenced to treat them as I would a case of black brood. Some of the bees that were the sickest died; but by far the largest part of the colony was cured and saved. I didn't care whether the bees lived or died; but I did want to see whether or not they could be cured of the disease.

I see Mr. Quirin could not succeed in having his queens fertilized *a la* Swarthmore. When will people get through fussing with those fussy things? Keep on doing things in the good old-fashioned way. I can succeed in queen-rearing by applying nature's ways; and I can do some things by trying the fussy things. Practical methods lead to success.

Wenham, Mass.



#### WORKER BEES GETTING INTO AN ADJOINING HIVE WITHOUT BEING MOLESTED.

The queen I got of you in June is a good one; but there is one thing funny about her. Her bees enter two other hives at will, and are not molested. I have been feeding winter stores, and in taking out frames to see the amount of honey they had, I saw quite a few yellow bees. They seemed to be at home, and had pollen on them. The queen I got of you is the only pure Italian I have, so there is no mistake. I can tell her bees as easily as I can tell beans from peas; but there is no mixture in the Italian hive.

Tell Mr. A. J. Root that the fish-hatchery is at Paris, and the silk city is Belding, not Greenville. They employ about 1000 girls. C. H. WIGGINS.

Lowell, Mich.

[What you say about young bees, friend W., is not at all unusual. Where an Italian queen is put into a hive containing black bees, with other hives of black bees close

beside, the Italians will be found scattered on both sides of the Italian hive. I think this indicates clearly that young bees especially often get into the wrong hive; and where they come in with a load of honey or pollen I think they are seldom if ever troubled. I have noticed this a great many times.

Many thanks for straightening me up about the State fish-hatchery. If any of our readers ever go near that part of Michigan I think it will pay them well to make the hatchery a visit at Paris, Mecosta Co., Michigan.—A. I. R.]

#### ARE MIDWINTER FLIGHTS OF CELLAR BEES NECESSARY? ETC.

Will you inform me if bees can be safely kept in the cellar all winter without being allowed to take flight? or would they need to be moved outdoors on some warm day so that they might evacuate? I have only a few hives of bees, and they are of the summer build, single board. They have from 20 to 30 lbs. of honey to the colony. I have a cellar with a furnace in one part, which makes it quite warm—perhaps on an average about 50°. What would you advise?

One other question I should like to ask—Does it make a difference where the beeyard is situated, about bees going to work in the morning? My bees have been on the west side of the house, where they did not get the morning sun, and it seemed to me that they went out very late in the morning.

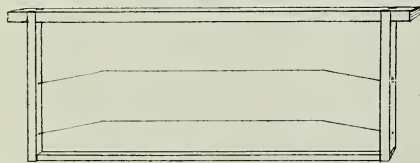
A. R. HARRINGTON.

Grand Rapids, Mich.

[We consider midwinter flights, when the weather will permit, quite an advantage. In our own locality, bees will get very uneasy and restless; and if they can be given a flight on some warm day they will quiet down and winter much better. There are others who differ with us in the matter.—Ed.]

#### A VALUABLE KINK IN WIRING.

Any one can get the wires in the frames, foundation in the top-bars, and wires in the foundation, but the two briers are, first, the "cost of the foundation," and, last, "that buckling." We can reduce the



first objection by using light foundation; but that means "more buckling." This brings us down to the wiring. Wires were first run vertically; later years, horizontally. Still there is frequent buckling. With horizontal wires drawn moderately tight, I give you a key that I wish some one had given me years ago, and that is, to *bow your wires*—upwardly, of course—the top wire the least and the bottom wire the most, us-

ing a spur wire-imbedder. With this mode of wiring I get entirely satisfactory combs, using light brood foundation, and better service with the spur wire-imbedder than when using heavier foundation. These, my later experiences, are with seven-inch frames and two wires to a frame. When wiring frames you will, to be sure, have the good sense to keep the bottom wire a sufficient distance from the bottom-bar, for the day may come when you would want to cut and use queen-cells from this point, where, as you know, they most abound.

A. B. ANTHONY.

Sterling, Ill., Oct. 19.

[Your way of wiring, or rather of putting wires into the foundation bowed up, will, I feel sure, prevent buckling. We have been in the habit of securing largely the same results by drawing the wires loosely. There is danger of using foundation too light and having too few wires in that the cells will elongate too much, resulting in the rearing of drone brood.—Ed.]

#### NEW ORLEANS MOLASSES AS A WINTER FOOD.

I shall have to feed a few colonies of my bees. Will it do to feed good home-made syrup partly granulated? If so, will I have to put in any water? If so, about how much per gallon? Bees can fly some nearly every week.

J. S. PATTON.

Havana, Ala.

[When you speak of home-made syrup I suppose you mean what we call up here New Orleans molasses. This would do very well as a winter food in a climate like yours; and to feed, reduce down with warm water so that the syrup will stand about ten pounds to the gallon.—Ed.]

#### DR. MILLER AND THE CLIPPED-QUEEN QUESTION.

I notice in Stray Straws your footnote in answer to Dr. C. C. Miller in regard to swarms having a clipped queen. I have had some experience myself with clipped queens. In September, 1902, I clipped all of my queens. The following spring, four out of seven swarmed. In front of each of three hives I found a ball of bees with the queen; and a short distance away from the fourth hive the whole swarm was on the ground.

Living on a town lot I am compelled, through lack of room, to keep my hives on a stand about 8 in. high. This, perhaps, keeps the queen from crawling back into the hive, which she likely would do if the hive stood on the ground. I do not know whether bees act differently in other States or not; but I do know, Mr. Editor, that, according to your footnote and my small amount of experience, Ohio and Pennsylvania are nearly alike.

Sewickley, Pa. W. W. BROCKUNIER.

[Dr. Miller is requested to read the foregoing.—Ed.]



## CANE OR BEET SUGAR.

I wish to ask you which is the best, to feed bees on beet sugar or cane sugar? Is beet sugar hurtful? J. D. HORTON.

Bloomingtondale, Mich.

[In this country we make no distinction between cane and beet sugar, but there seems to be a difference of opinion among a few. In England bee-keepers are warned against using beet sugar; in this country we have been in the habit of using either beet or cane indiscriminately, for the fact is there is no test we know of that will enable us to tell the one sugar from the other. I have talked with beet and cane sugar men, both representatives of the manufacturers, who stated that there was just as much sweetening power in one as the other, that chemically they were the same, looked exactly alike, and that so far as wholesomeness was concerned there was no difference.—Ed.]

## FORMIC ACID IN HONEY; BEE-STING POISON; WHAT IS IT?

*Mr. Root:*—Referring to formic acid in honey, page 846, let me state the result of our investigations here on the continent. Honey contains about .002 per cent of the officinal formic acid. How it comes, with other etheric substances, into the honey is not yet quite clear. The most probable theory is that it is absorbed from the atmosphere in the hive. Every bee-keeper has smelled the specific aroma which comes from the hive when disturbing the bees by opening the hive. The disturbed bees open their reservoirs of poison, as any one can easily observe. He will notice how the bees raise their abdomens, opening the cavity of the sting. All the atmosphere of the hive is impregnated with the etheric substance, including formic acid, which is also the reason that now the honey and now the pollen will be spoiled on account of the antiseptic qualities of these etheric substances. As to the poison causing the pain and swelling of the stings, the formic acid is the least exciting cause. The chief substance is a well-defined albumic toxin, very similar to the toxins of bacteria; or, to be exact, the pain is caused chiefly by the formic acid and the other etheric substances, while the swelling and sometimes graver symptoms are caused by the organic toxin. To the latter the bee-keeper becomes immune; but to the first, never.

Dr. BRUNNICH.

Ottentbach, Switzerland, Nov. 1.

## DECOY HIVES; A MIXTURE OF COMB AND EXTRACTED HONEY.

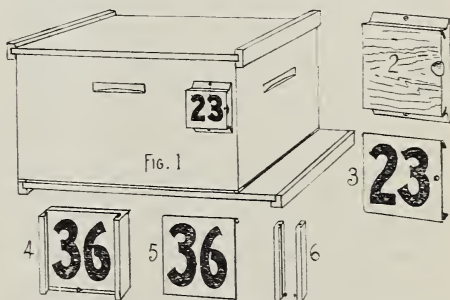
It may be of interest to some of your readers to know how we catch bees out here in Nebraska. Why, we just place boxes or hives up in the trees out in the woods, and the bees go into them—our neighbors' absconding swarms. I thought of this when I read of "furious swarming at Medina."

Nearly all of my bees were procured in this way. They have made a fine lot of honey which I sell at 15 cents per lb., placed nicely in gallon syrup-pails. I first put in some nice comb honey, then fill up with strained honey until it weighs a dollar. I make it all up into dollar packages; customers take it readily in this way.

Williams, Neb. Mrs. JOSEPH LAMB.

## ARTIST MURRAY'S IMPROVED NUMBERING-TAGS.

*Mr. Root:*—Utilizing your idea of the metal binding on your movable bottom-board. I suggest that a numbering-tag for hives be made which is easily slipped off or on by inserting a screwdriver or any thing handy



in the hole, underneath which is a scooped hole as shown. The block can be made very cheaply in long strips, and cut off any size, and the metal cap or tag to match can be nailed to any portion of a hive, and numbers or tags interchangeable with any other. No blowing away or hanging askew; need not be made to fit tight. R. V. MURRAY.

Cleveland, O.

## SHEEP IN LIEU OF LAWN-MOWERS.

I am anxious to know how it would do to put two or three sheep in the bee-yard. I dislike to have the grass grow up among the hives.

C. J. PEARSE.

Port Terry, Ont.

[You can put sheep in a bee-yard to crop down the grass, and they answer excellently for the purpose; but you can not have grapevines, or other foliage of which they are fond, within their reach. They will eat almost any thing green. Of course, they will do no damage to trees where the branches are high enough so they can not get at them.—Ed.]

I wonder why Mr. Danzenbaker has not tried turning his brood-chamber bottom up instead of taking out the frames and inverting them. Would it not save him and the bees lots of trouble?

Wells, Minn.

J. V. WOODWORTH.

[Frames can be reversed *en masse* by turning the hive over; but in the case of the Danzenbaker the thing is not practicable. If you see a hive you will see why.—Ed.]



While in Los Angeles we had many side trips, through the courtesy of the bee-keeping friends. Mr. J. W. Ferree, of Los Angeles, was especially busy in this work. I do not know whether he owned the fine rig that he took us around with or not; but I suspect he got it at a livery-stable. Never mind. We were royally looked after, however it was. In one part of the outskirts of the city there is an industry that interested me greatly. It is not bees, but pigeons or doves. We are told there are about 40,000 bees in a good colony. Well, some one said this colony of doves comprised something like 30,000, and they are all in one spot. The air was literally filled with them; the roofs of buildings in the vicinity were covered with them, and they were all the time down at the creek getting water by the hundreds if not thousands. Here is one class of animals or birds, if you choose, that does not seem to be troubled by being massed in great numbers. I think the man's business is raising squabs. Perhaps some of the Californians will tell us more about it. I was told there did not seem to be any difficulty about having so many all in one place, but perhaps it is because, like the bees, they spend a great deal of their time in the open air on the wing, where there is no crowding. Some of the houses for them were very pretty, with the entrances made of different colors. I do not know whether pigeons pick out their own domicile as bees do, by instinct, or not. But it was a revelation to me that this great number could get along together without contagious diseases getting in. Somebody said there was some complaint made that they polluted the waters of the creek. I do not know why such an enterprise should be right in the edge of so large a city. Why not have it right out in the country? By the way, could not a good business be done manufacturing home-made guano at the same time?

Friend Ferree dropped me at Mr. G. W. Woodbury's, in Glendale. Our older readers will remember I have written him up once or twice before. When I first visited him he did not have any wife. Of course, I remonstrated, as I always do. A few years afterward I found him a happy man with both wife and baby. Well, when I called on him about a dozen years ago he was using his leisure moments in leveling down the mountain so as to make a nice little spot for his home. I believe his ranch is all on the side of the mountain. Now, I am not certain he has been leveling off that mountain all the while for a dozen years past, but I found him still at the same job, and a very pretty apiary indeed was planted on that leveled ground. By the way, his good wife is now the bee-keeper. She

takes care of the bees, and does pretty nearly all the work, if I am correct, while friend W. can look after the town waterworks, level down the mountain with his Daisy wheelbarrow, or do whatever he likes. Don't you see, friends, what a wonderful advantage a married man has from *beginning to end* over the other fellow who "fooled away" his life without getting married at all?\*

You might think that the soil from the mountain would not be very fertile. On the contrary, many things grow with wonderful luxuriance in this pulverized granite; and some things grow without irrigation. Mr. Woodbury showed us where he had planted *Lippia repens* on the outside edge of the bank, where the loose dirt stood at a steep angle. He thought it was *Lippia nodiflora*; but Prof. Benton, who was one of our crowd, called it *repens*, and I assure you it was a very pretty sight. In time it will probably hold the loose sides of the bank compactly in place, while it makes a beautiful soft green carpet.

I left the crowd at this point, and friend W. took me back to the city with his own conveyance. I wanted to go past a celebrated strawberry-farm, and it was actually my privilege to see two strawberry-fields of forty acres each. Of course, they are irrigated. The arrangements for gathering the fruit, and sorting it, for applying the water, and doing every thing that needs to be done, is carried on like a well-managed factory. Telephones run all over the plantation so as to save steps. It is all leveled off like a brickyard, and the irrigating is done with mathematical precision. There may have been a weed or two in the eighty acres of strawberries, but I did not have a chance to see them. I did not see the owners of the ranch, so I do not know whether it is paying; but it was worth going a long way to see such an object-lesson in the way

\*And this reminds me that, while I was walking along the streets of Los Angeles, a beautiful woman stopped me and asked if I was not A. I. Root. Now, some of you may object; in fact, I know one other woman who objects frequently when I call her "beautiful," but when I add, "Well, you are beautiful in my eyes, any way," she says, "Oh! well, that is all right; but I feel kind o' sorry for you, after all." Perhaps I had better say that the woman who accosted me with a smile that made my heart bump was beautiful in my eyes, any way. After I told her I was the man in question, she said, "I am Mr. J. P. Ivy's wife. You know him pretty well." Before I thought, I said right out, "Why, has my good friend Ivy gone and got married?" I do not know but I colored a little, and perhaps she did too; but it only had the effect of making her still more handsome (that is, in my eyes, you know); and then we both had a good laugh. Then she added, "Married! I should think so—look here." Then she called my attention to a little girl by her side, whom I had hardly noticed. Now, may be you think I am getting along pretty fast; but when I got a good look at the girl I thought, but I did not say it this time, she was, if any thing, even *better* looking than her mother. Then I remembered how I had exhorted friend Ivy with a lot of other Arizona bee-keepers to get married and have wives, and be somebody and to amount to something in the world. Of course, it does not follow that friend Ivy got married just because I told him it was a Christian duty he owed to humanity to do so; and I really hope that those other fellows who did not take my advice will come to their senses when they get such a glimpse as I did of Mrs. Ivy and the little girl.



of high-pressure gardening, and to have actual demonstration that some things can be done right out in the fields as beautifully and as accurately as our catalog people often do it on paper.

On page 855, in describing the Agua Caliente springs I mentioned a three-days' trip across the desert; and I wish right here to tell you a little more about that trip. I was beginning to feel a little bit lazy and dull under the influence of a long-continued temperature of over 100 degrees. I told my brother I should have to get to work at something to keep my blood circulating. He thought the hundred miles across the desert, with a mule team, would be the thing. I confess I looked forward with considerable anticipation to such a trip. The greater part of the distance there were no dwellings whatever. In fact, it was only at long intervals we could find water for the mules. At one place we had to dig down in the sand in the dry bed of a mountain stream to find water. Over a great part of the trip there was little or no vegetation, for in these places there is no rain to speak of for almost a year at a stretch. Occasionally, however, great floods come across these tracts from cloud-bursts on the mountains near by. Different mountain-peaks come into view and disappear. As some of these mountains are visible a hundred miles away, it gives the traveler a chance to preserve his landmarks if he watches carefully the contour of the mountains around the horizon. At one place we saw the head of a giant, visible almost all day long. With a little imagination the features were very classic, and sometimes handsome. The principal game we encountered was quail and cottontail rabbits.

As the wheels made their way through the sandy trail they left a kind of V-shaped mark or furrow. Pretty soon I began to notice queer hieroglyphics in the bottom of this V-shaped furrow in the loose sand. My brother told me they were caused by reptiles that got into the wagon-track and could not get out. Sometimes they would wiggle along a great distance. I was especially interested in the trail left by what is called the side-winder rattlesnake. My brother said it was the same thing that is often called a hoop-snake. May be you heard about it when you were a child. This queer but dangerous reptile makes its peculiar track by elevating a part of its body in the form of a corkscrew, for its trail in the sand looks exactly as if a large corkscrew were turned along in the bottom of the sandy furrow. There is a series of letter S's, one after the other, a regular distance apart. I had a great curiosity to see one of these "side-winder" rattlesnakes, but my curiosity was not gratified.

When we got near the city of Phoenix there were, occasionally, little towns, or perhaps a store and postoffice, and a well, as a matter of course, to furnish water for man and beast. These stations were literal oases in the desert. At one of them I

noticed some beautiful pigeons. They had a tropical look, and were different from any thing I had ever seen before. The landlord explained that they were brought there by a relative from some foreign land. After dinner, while we were sitting in the shade of the porch, one of these beautiful birds came up near me, rolled over on its back, clasped its hands, I was going to say, but they were really dainty little feet, gasped once or twice, and in just a moment was still in death. Our host explained that he had just been poisoning some ants with strychnine. The bird was fond of ants, and, as he supposed, picked up some of the poisoned ones. We can not be too careful about using poisons. This reminds me that the editor of one of our great agricultural weeklies recently advised a subscriber to poison his neighbor's bees because they annoyed him. I was surprised to find an editor who either did not know or did not care whether he was recommending the breaking of a clear and distinct law of the land.

The question has often come up in these desert countries as to whether one can grow crops successfully, and pump the water needed from a well with a steam-engine. My brother and I visited a ranch near Tempe, where a section of land was growing alfalfa very successfully by pumping the water. I think they had to raise it with the engine some forty or fifty feet. Of course, the expense is a little more than getting water from the irrigating-canals. But in almost every locality that depends on irrigation, there are times when water is wanted most and one can not have it. This man was independent. I do not remember the power of his engine; but the engineer told us that, by working a little over hours occasionally, the whole section can be given all the water needed. An acre well set to alfalfa is considered in that locality to be worth \$100. Some farms are sold for more than that. Alfalfa-growing is so much of a business in the Salt River Valley that it is no uncommon thing to find people pulling up their fruit-trees in order to grow alfalfa. The alfalfa is much less labor to harvest and sell, and a good many think they get about as much money one year with another as they do from their fruit-farms. Fruit-growing is making some progress around Tempe, Maricopa Co., but not as much as many thought it would at one time. The Rev. Mr. Close, who lives at Tempe, showed me an object-lesson by way of high-pressure gardening that is worth considering. Less than ten years ago his wife planted some date seeds just for the fun of it. They came up promptly, grew, and with very little care they are now producing great bunches of most luscious fruit. If I am correct, one or more of these date palms are already giving crops of 100 lbs. of fruit that sold for 25 cents per lb. Twenty-five dollars for the crop on a single palm-tree scarcely higher than your head. The experiment station, a few miles distant

from where this was done, is now experimenting with all the promising date palms that can be collected from different parts of the world. Some of the plants, or little palm-trees rather, are worth *ever so many dollars* each. Wonderful results are now and then achieved with these tropical fruits; but, as I have said, the average farmer seems to decide that alfalfa-growing is surer than almost any thing else.



Husbands, love your wives, and be not bitter against them.—COL. 3: 19.

On page 503, June 1, I repeated a story I gave to the Spanish mission school in Cuba, our good brother Frazier translating it as I talked. In speaking of the failure of a certain charitable institution gotten up by the learned doctors, with the aid of all the most scientific appliances, I said:

The whole trouble was this: The poor babies hungered, not only for plenty of milk, but they wanted to be *loved* and *kissed* and *cuddled* and *talked to*. When they opened their eyes in this cold world, and found no one who loved them as babies ought to be loved, they said in their infantile mind, "Why, we might just as well die now as at any other time. Nobody loves us, and nobody cares for us; and what is the use of living?"

During the six months that have passed since I told that story, it has been much on my mind; and I have been impressed again and again that it is not only *babies* that die for want of somebody to love them, but it is often grown-up people, and especially grown-up women—yes, wives and mothers. The babies I mentioned died of starvation—that is, one kind of starvation—when they were amply supplied with the best and most nourishing food the world of science could furnish: they were starving for a mother's love.

There has been considerable comment on the matter of the number of women who are in the asylums for the insane; and, if I am correct, a large proportion of them come from farmers' homes. Now, I am impressed that this insanity among wives and mothers is right along in line with the cause (or perhaps, rather, the *reason*) why those babies died in that palatial asylum. They died because they craved and hungered for the love they did not get. The babies could not live and thrive unless they were loved and kissed and cuddled and talked to, and called pretty names. Why, my good friends, if there is a baby in your home, no matter how old or how young—that is, it does not matter so very much how young—you can, if you try hard, make it respond to loving words.\*

\*Something tells me just now that my sermon to-day is hitting me a pretty big clip. Within a few steps of where I now am there is a bright pretty baby that fairly bounds with enthusiasm when he catches a glimpse

If there is no baby in your own home, hunt up one among the neighbors somewhere, and begin to cultivate its acquaintance. We not only make the *baby* grow and thrive by finding somebody besides its own mother who loves it and welcomes its presence into this bright world of ours, but it will make *you* grow physically, morally, and spiritually. Now, herein is this great truth, that not only is the baby or wife benefited by kisses and loving words, but the one who loves is in like manner benefited. Much has been said of late about the benefits of pure air—outdoor air, for instance; and since these days of the typhoid-fever epidemic, pages have been written about the importance of pure drinking-water, or boiled water, in every neighborhood where typhoid fever is prevalent—the use of distilled water for drinking, where it can be had, etc. But, dear friends, I am persuaded, and I think the Holy Spirit is prompting me when I say, that loving words and loving actions are of as much importance as pure air and water and wholesome food; in fact, a loving heart should be prompted to take care that the air, water, and food be of the best.

Now, I am going to talk plainly to-day, and some of you may object a little. The first year you were married you looked after the dear little wife carefully. You gave her kisses and caresses—called her pet names, without stint; and then to be a manly husband (by the way, what is grander in this world than *noble manhood*?) you went to work and provided the dear little wife with every thing she would be likely to need, before you went to work. If out on a farm, and you two were alone, you provided the best of wood and water near by the little woman you loved, so as to spare her useless steps or exposure; you provided her with warm and comfortable clothing; if she was subject to cold feet, as many women are, you at times took those dear little feet in the warm palms of your great manly hands, and warmed them up; and straightway you looked after the stockings she wore in wintry weather; then you examined her dainty little shoes, and recommended warmer ones; and as winter came on, you investigated the matter of overshoes. If she was obliged at times, or preferred as a matter of choice, to look after the chickens, pigs, and may be a cow, you probably gave her some warm stockings and felt-lined rubber boots made expressly for women.

Now, I do not know exactly *what* you did the first year you were married, for it was

of his *grandma*. I do not know but he loves his grandma more than he does anybody else in the world, his own mother not excepted. Well, the baby and I are at perfect agreement in one respect at least; but what I was going to say just now was that his grandma does not get in to see him often enough but that he throws his little head one way and the other to see if his papa or mamma, or, better still, grandma, is near by to encourage him when his *grandpa* takes him in his arms. Just as soon as I get this article written I am going over to take some of the same "medicine" I am prescribing for my readers.



probably a good long while ago—forty or fifty years, for example. At that time they did not use furnaces in the basement to keep the floors warm as they do now; so I think we shall have to jump ahead all these years and come up to the present time. We will suppose you are about 64 years old (just my age), and that your wife is a year or two younger. Dear brother, do you now, after all these years, take those cold tired feet in the big warm palms of your hands—those tired feet that have traveled *unceasingly* for you and yours all these forty or fifty years? Do you now often take that dear faithful woman in your arms as you did when you were first married? Have you been in the daily habit of holding her thus and kissing the gray hairs as they came to view one by one? If you have not, then let me tell you you have not done *every* thing you could to save her from sickness and death. May be in all these years you have paid out much money for doctors' bills that might have been saved had you loved her and kissed her and caressed her oftener than you have done. You may urge that a busy farmer or mechanic has no time to sit down and cuddle his wife, and call her pretty names as he did when they were young. But, my good friend, such things might save a "heap" of travel in the night in going after the doctor. They might save the expense and presence of a hired girl in your home. Why, I have *heard* of farmers' wives who had not received a loving kiss from the busy pushing man of the house in a *whole year*. No wonder that trouble, sickness, and death invaded the home.

And, my dear good friend, there is a worse thing threatening the homes of our land just now than sickness and death; yes, perhaps I might say a worse thing than insanity. Go and visit your county infirmary; take a look at the wives and mothers assembled there. Such a fate is sad, I admit; but that of an unhappy *divorced* man and wife is even worse. Our dailies have just told us of a woman who married another man in just *twenty minutes* after the divorce was granted! Well, I suppose she could do so legally if she chose. Now, the dailies did not tell us anything about what went before; but we may guess there was no particular trouble with her former husband except that he *stood in the way*. She had placed her affections (?) on another man; and when she got rid of her lawful husband she fairly "hustled" to get married to man No. 2. Years ago, when a schoolboy, I came to a problem in algebra where the result could be projected and written on the blackboard without solving the problem at all. You started out two or three steps until you saw the way the thing was working, and then jumped away over to the conclusion, and got exactly the same result as if you had gone through a pile of figures. Now, we may safely predict (in like manner) that this woman who got married in twenty minutes after her divorce will be looking out very soon for husband

No. 3; and if she is not stopped, nobody knows how many there will be. When Satan gets a pupil well under way, he does not often let that pupil go. I do not know whether the first husband was at fault in not loving his wife; but I think it quite likely he was largely; but perhaps the woman was more at fault.

Who can tell what pain and anguish of spirit a parent may feel, especially when this union before God has been sealed and cemented by raising a family of children, when either parent is obliged to feel that the other is unfaithful! A friend once told me some of his experience. Satan tried to get the poison into his heart. But he recognized him, and prayed in anguish, "Get thee behind me, Satan." His story interested me at that time, because it gave me a glimpse of the suffering and anguish that may rend a faithful and devoted heart. It was a rather strange experience; and as it may prove to be a warning to some others I am going to let him tell you about it in his own words as nearly as I can remember.

#### THE MAN'S STORY.

When I was away out in the mountains of California, a little homesick, Satan brought up a long-forgotten memory of the past. He said, "Of course, your good wife is a model woman, as all the world knows; but away back, some forty years ago, if you will just think of it, there was at least a *little* time when she was not as loyal to you as she might have been."

I repudiated the suggestion at once, and tried to get it out of my mind; but in spite of every thing I could do, especially when I was traveling alone among strangers, memory (or perhaps we had better say Satan) went to picking up little bits of facts (at least the adversary asserted they were *facts*) and piecing them together until I was not only miserable, but began to cherish feelings that were pretty nearly unkind toward my dear devoted wife. I decided I would question her in regard to the matter, even if it was away back ("ages ago") as soon as I got home. When I looked into her dear eyes I felt ashamed of myself. But Satan had got a little bit of a foothold. Every few days memory would supply something further in regard to the matter until quite a little structure had been built up. At last I decided, even though it should annoy and pain her, I would tell her what was going on in my mind; and I felt so ashamed of myself, while bringing up something of years ago, that I almost had to do it with downcast eyes; and, oh how quickly Satan's fabric vanished when she looked me in the face with a happy innocent laugh and explained every thing! I had forgotten the order of events, and got things mixed, and she was entirely innocent of the whole matter. For several days afterward, when I went into the house she would look up to me with a most bewitching smile and say something like this:

"And so you *did* think, dear old huz, that there was a time in my life when I actually

looked about a little to see if there were *really* any 'handsomer men' about than your dear old self? Now, aren't you ashamed of yourself? Be honest."

"Yes, dear old girl, I *am* much ashamed of myself—ashamed to think that I ever let Satan crowd into my heart a suggestion that you were not, or at some time in the dim past had not been, fully worthy of the place you occupy in my *heart and soul*."

"Now, Mr. Root," said he, "I have mentioned this simply to tell you of the glimpse I then had of the *torture* that must wring any true man's heart when he finds his wife has been listening, even a little bit, to the whispers of Satan; to think she has been listening, as mother Eve did, to the serpent in the garden".

In regard to the above story, I suppose many of the women-folks will want to "speak right out in meeting here." Mrs. Root would be one of them if it were not for the fact that this speaking-out would hit your old friend A. I. Root a most fearful clip. What these good women—these wives and mothers—would say is something like this:

"Mr. Root, how much better is it in God's sight for a *man* to be unfaithful than for a *woman* to be untrue?"

I shall have to answer, even though I lash *myself*, that I believe a man should be as pure in thought and deed as he demands that his wife should be. God have mercy on me, a sinner. Not a sinner *now*, thank God, and not a sinner in that way, since I chose the Lord Jesus Christ as my guide, helper, and *redeemer*. But I *was* a sinner away back at the very time when I (like every other man) *demanded* of my wife something away up above what I was. And now after I say that, I am persuaded the greater part of the divorces come about because wives are not loved as God intended, and as our text admonishes us they should be loved.

Now a word more about the wives and mothers who go about with cold feet. Many of you urge you can not afford a furnace, or, better still, steam or hot water, in your basement. But, my good friend, have you reflected that a funeral—at least a funeral as generally managed—will cost as much as a furnace, or even more? Instead of taking a trip to the undertaker *after* your wife is dead, suppose you take a trip to the plumber while she is alive and well. Do something this very day toward preventing your wife or mother, the jewel of your home from going about any longer with cold feet. If she says her feet are not cold, or not cold enough to do any harm, be doctor for a while. Take her feet often up across your lap; warm them up by the cookstove (or some other place) and see that they are *kept* warm. The kisses and pet names are all right providing they are manly and consistent. After you have told her you love her, you might add that you love her *still*, even if she *is* getting gray-haired and wrinkled to the outside world. After you

have said in words that you love her still and that she is not gray-haired and wrinkled in *your* sight, prove it in a manly way.

Somebody has said there are farmers who do not take as good care of their wives as they do of their domestic animals. It would be a loss of money to let the latter go unprotected, or without food and water. Dear me! I wonder if it would not be a loss of money in the end to neglect the dear wife. And what is the money *for*, after all, when the presiding genius of your home lies cold and still in death? Then, perhaps, if not before, you will realize how worthless in comparison is money or stock or a farm.

Of course, I mean that all I have said shall apply to husbands as well as to wives. But women, as a rule, are given to loving as well as craving for love. Some of them, perhaps, *are* neglectful of their husbands' happiness and comfort. Yes, there may be quite a number who forget to say, "You are a dear old treasure for going out in the cold, and working so hard to keep me here indoors with all these comforts." Perhaps some of the dear women may kiss the gray hairs a little oftener, and perhaps lift the rough hands, hardened with toil, to their lips occasionally, in recognition of what these rough hands have wrought.

When I was about twelve years old I took a great liking to chemistry. A bright young man taught our village school. He was, by the way, an expert carpenter; and when he found out, by getting acquainted with me in my class in chemistry, that I was making sundry experiments at home, he suggested one day after school that he might help me in getting up my home-made apparatus. Of course, I was highly delighted; and under his skillful management with tools, my experiments were a success. Well, after he had made me happy he edged around to another side of the house where my grown-up sisters were; and I can remember feeling plainly after a while that I feared he did not care so *very* much about the chemical apparatus after all. This young schoolteacher and one of my sisters will, in a few days, celebrate their golden wedding, having been man and wife for fifty years. Well, this brother-in-law of mine has been, all his life, remarkably skillful in all sorts of handicraft. Away back fifty years ago it was the fashion to make mottoes with what they called perforated paper. These mottoes were sewed through with beautifully colored yarn called crewel. Of course, brother James had to try his hand at the new art;\* and one day in opening a book that belonged to my sister I found the prettiest piece of perforated-paper work that I had ever seen. It read:

*Thine till the heart in death is cold.*

It was about the time these two people were engaged. I was a boy of about four-

\*Mr. James G. Gray was, at the time of which I was writing, holding evening schools for teaching penmanship. He also gave lessons in ornamental penmanship drawing.



teen; and it struck me at that time as a wonderful piece of artistic beauty. Not only the handwork and design, but the thought it embodied—that this bright skillful young teacher should say to *my sister*, that he placed all he had, and all he was, in her care and keeping, until that beating heart grew *cold in death*—was to me a piece of sublimity and heroism that was to be admired and emulated.

No doubt you have discovered there is something Quixotic in my makeup. I have read Don Quixote again and again, and, I might almost say, laughed and cried over it. A year ago while in Cuba I had aspirations to be able to read Don Quixote some time in the original Spanish. Well, it is a grand good thing to be Quixotic within certain limits. It was my good fortune to be with this sister and her husband more or less for a good many years. When I taught my first school I made my home with them, and with an older sister who was also recently married.

Now, I want to say just a little more about that young schoolteacher. He was not only handy in carpenterwork, but he has always been handy everywhere. He could not only build the handiest house imaginable for a woman to do her work in, but he could wash and bake, and, I think, do every thing a woman usually does. That motto of his was in my mind, and I used to watch him for years afterward to see how well he lived it out. He was up early in the morning, and I think he invariably made the fire. We lived in the back woods then. He started breakfast; had plenty of wood in the stove and plenty in a neat tidy wood-box; he had the water handy; he did not spill any ashes nor make any litter. Mrs. Root is a model housekeeper. Everybody says so; but she says herself she can not keep a house as neat, and with so few steps, as my sister who married the schoolteacher; and she thinks it is largely due to the assistance that the schoolteacher has always given to his wife, not only in doing the work, but in *planning with* her for the best and shortest cuts for doing housework.

Now, in closing permit me to say there is, in my opinion, nothing in this world to be compared with, as a helper in having husbands and wives love each other, as the *gospel of Christ Jesus*. Mrs. Root and I read something from the Bible, at least once every day of our lives. Then we kneel together (we are now living all alone, as the children are all away) and ask God to help us in using our declining years in such a way as will give him most honor and glory. This daily reading of God's word, and kneeling together in prayer, has done more to give us happiness—yes, *health* too—than any thing else in this world. "Thou shalt love the Lord thy God with all thy strength, with all thy soul, and with all thy mind, and thy neighbor as thyself." Now, the thing to do is to put love to God first and foremost. If we do this, love to our neighbors will follow.

And now, seriously, is there any other *neighbor* in this whole wide world so *near* and *dear* as the woman—or, perhaps we had better say, companion—whom God gave? Something suggests to me right here that my talk this time is in very truth a "*home* paper."

#### BRO. WHITCOMB'S NEW LIFE—MORE ABOUT IT.

Let me explain that Bro. Whitcomb wrote to Bro. York some letters, which the latter forwarded on to me, saying he felt sure I would be glad to read them. After getting my letter he wrote to Bro. Whitcomb for permission to use them in GLEANINGS. Below are the letters referred to:

*Bro. York.* You have my permission to do what you please with the letter referred to. I am not ashamed of any thing connected with the matter; and if it could do any thing toward leading any soul to Christ I shall say, "Gory to God!"

I thank God that things look brighter, and the time is drawing nigh when my prayers will be answered. I start for Louisiana to-morrow morning, and I shall take my Bible and religion with me. I have a brother down there who is out of Christ. Pray for me that I may win him over to the right side of the cross. We had a praying mother; whose prayers have followed me through four years of cruel war, and more than half a hundred battle-fields, and then on through life. To say I do not know how I should have lived without them.

Yours for God.

E. WHITCOMB.

*Brother York.*—During last August some Chicago fellows, the Olivers, opened up ten meetings at this place, and among other results forsook a lifetime of sin and began to serve God in earnest, since which time I have had the usual prayer-meeting and other means of grace to attend to, and have the finest Bible-class in the Sunday-school you ever saw. I know that you will say amen to that.

No man or woman has been able to handle and investigate the organization of the honey bee for any length of time without being greatly impressed with the wonderful wisdom of God, and his most wonderful workings. I am yours very truly.

Friend, Neb., Nov. 11.

E. WHITCOMB.

After relating his experience when coming out of the tent, as given in the Dec. 15th issue, Mr. Whitcomb adds:

I got on my knees before God, and prayed the prayer of the publican. "Lord, be merciful to me a sinner." Then his satanic majesty appeared and said, "Ed, you'll make a fool of yourself. You can not run a newspaper and be a Christian." But I said to him, "If I can not, I'll let it all go for God." And I tell you, brother, oh how abundantly God has blessed me, and he blesses me every day with showers of the Holy Ghost. My work is easier, and I am able to do it and praise his holy name at the same time. The things that I once loved I now hate, and the things which I once hated I now love. O my brother! what a transformation! It is a religion of the heart and not of the head.

The family altar has been established; and so long as God will continue to bless us, so long will it remain, and so long will our prayers ascend to Heaven for those who are near and dear to us. I know that God does hear and answer prayer, and I must not expect to get through the few years that yet remain for me without trials and temptations. If God wishes to try me I am willing that he should do so.

Perhaps there may be a little repetition; but I am sure our friends will gladly overlook it.

Now a word in regard to his paper. This question has often come up among new converts. Years ago the editor of one of our county papers, who had taught infidelity more or less through his columns for years,

accepted Christ on his death-bed as his Savior. He sent for me, and told me about his change of heart. I then plead with him to give me something before he died, for publication in the paper of which he was editor. He said he was too weak then, but would give something later. But I felt so sure he never would that I begged him to permit me to make public through his own paper his repudiation of infidelity and acceptance of Christ as the Son of God and the Savior of mankind. He was not willing to do this; I plead with him till he cried so vehemently his wife and daughters interposed, and declared I must not prolong my visit. He was willing to say to his friends that he had renounced his skepticism and had become a Christian; but he could not consent to come out in the paper he had been editing so many years, and tell of his new birth. At his funeral, when the clergyman announced in his sermon that Mr. G. accepted Christ before he died, a man at my elbow said, "That is a lie." After the sermon I remonstrated with him, and he said something like this: "I can not believe, from what I know of Mr. G., that he ever accepted Christ as the Son of God—surely not when he was in his right senses."

Note the contrast. Mr. Whitcomb says if he can not edit a newspaper successfully, and put his Christianity into that paper, he will let the newspaper go and every thing else, "all for God." Now, then, will the Christian people stand by him in his new departure, and see that his paper, *The Friend Telegraph*, is a success.

## HONEY QUEENS

I shall continue breeding those fine queens for the coming season of 1901. Meantime I shall carry over a large number of queens in nuclei with which to fill orders the coming winter and early spring. I am breeding the Holy Lands, the Golden and Leather strains of pure Italians. Your orders will receive prompt and careful attention. Single queen, \$1.25; five for \$5 00. Breeders of either race, \$3.00 each.

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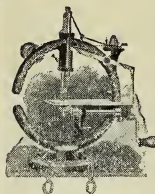
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# Did You Read This Notice in Nov. 15 Gleanings?

## The Plant and Seed Business of The A. I. Root Co.

After having sold vegetable seeds and plants for almost 20 years, I reluctantly announce that I am about to give it up. In fact, our seed department has already been sold to E. C. Green & Son, of this place. Many of you are somewhat acquainted with Mr. Green from his writings in *Gleanings* and other agricultural papers. He was for many years connected with the Ohio Experiment Station, and had charge of the department for testing new vegetables. He is also originator of Burpee's tomato, **Fordhook Fancy**; also several varieties that are offered by Livingston. In fact, he has all his life been connected more or less with originating new plants and vegetables. The son is now in our employ, where he can have daily consultation with me in regard to getting hold of the minutiae of our seed business.

Permit me to add that, before the step was decided on, quite a lot of garden-seeds were grown expressly for us. By having them grown to order we are sure they are not only fresh, and true to name, but we are enabled to give very much lower prices than where we are compelled to buy our seeds from some other party. Our successors, E. C. Green & Son, will have all of these specially grown seeds. Those who have purchased them from us during the past two or three years know how well they have turned out.

**A. I. ROOT, in Gleanings, Nov. 15, 1903.**

In taking up even the seed business of A. I. Root we feel as if we were dealing with, not merely his customers, but with his friends. But we intend to make them ours if square, honest dealings will do it. We, therefore, respectfully solicit the seed trade that has been Mr. Root's.

## E. C. Green & Son, - Medina, Ohio.

Have you ever seen the **Fordhook Fancy Tomato**? It is unique, a **NEW CREATION** in tomato; something different from any other tomato grown, and, withal, an extra good one in size, shape, quality, and earliness.

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January, 1904.

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**\$10.00** to the person sending the next greatest number of subscriptions.

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**\$25.00 Additional** will be divided among any persons sending 10 or more subscriptions to these magazines if they do not win one of the above prizes.

Each subscription for The Journal counts one point; each subscription for Post two points. All these prizes are in addition to the liberal commission to be deducted when the orders are sent. See body of this catalog where these two magazines are listed for details of commission. In the division of the extra \$25.00, each 10 points will entitle you to an extra share.

C. M. GOODSPEED, Skaneateles, New York.

## CASH PRIZES:

To the agent sending me the most subscriptions to the following list of magazines (either single or in combination) we will give the following Cash Prizes May 1, 1904: To the largest list, \$25 to the next largest, \$20, to the next largest, \$15, to the next largest, \$10; to the next largest \$5. We will also give \$.50 to be divided equally between all club raisers who send 10 subscribers and do not win any of the above awards. Cosmopolitan, \*McClure's, St. Nicholas, Frank Leslie's Monthly, McCall's, and Pattern, Century, Scribner's, \*Youth's Companion, new subscriptions only.

\* Must not be put in combinations.

This contest is open to all, but we shall insist that all agents and publishers live closely to the rules of each publisher. See where each publication is quoted for these rules and we reserve the right to refuse all prizes and refuse the business of any agent or publisher that does not live to these rules. All questions answered by letter promptly about above offers. Address

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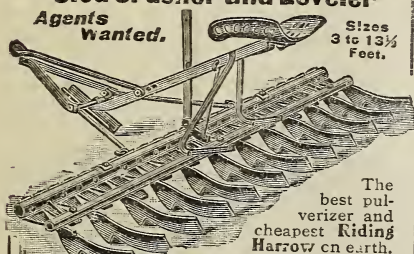


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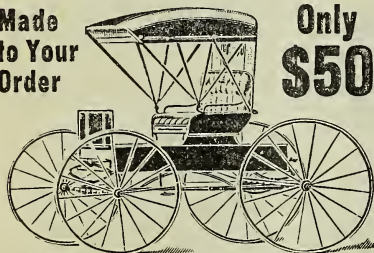
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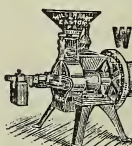
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